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BRATTLEBORO, VT.

1904

THE PUBLIC HEALTH LABORATORY.

By DR. B. H. STONE.

So much has been written and spoken since Pettenkofer's great experiment at Munich regarding the usefulness of the public health laboratory, such practical as well as theoretical demonstrations of its intense importance to the community have been presented, that any general discussion along that line must be something of a repetition, yet possibly justifiable at the present time.

Springing from one of the smallest of these scientific workshops the seed, knowledge of bacteria, has blossomed into the splendid flower of modern medical and sanitary achievements.

This knowledge of the etiology of disease, coming from the research laboratory, has made necessary the laboratory for diagnosis and investigation. With this widening knowledge has come the demand for the specialist as the life of no man is long enough to gain proficiency in every branch and department of medical science.

The general practitioner, thank God, has not yet gone or ever will go, but he must seek advice more and more of the specialist. It is a necessary result of development. The public health laboratory is established to furnish him the advantage of technical knowledge and skill which he cannot acquire and which he has not time to use if he could master the details.

The first laboratories, established and maintained by private funds, were for research work alone. To these institutions humanity owes a debt which can never be repaid. The outgrowth of these, the diagnoses laboratory, is filling a position which, while not so spectacular and fascinating, is none the less useful.

The physician who treats his patient by guess and makes a diagnosis by watching the effect of medication alone can no longer hope to compete with the man who uses every means at his command to make an accurate diagnosis of his case and then treats it rationally. The first is like the bridge builder who builds a bridge by guess and tries it by driving heavy loads over it until he finds one heavy enough to go through. The other, like the modern engineer, knows to a pound the strength of every brace and bolt.

In the early diagnosis of diphtheria the physician should learn to rely more and more upon the bacteriological findings. A careful comparison of statistics shows that even the best of clinicians will make an error in early diagnosis in fully 25 per cent of cases; an error which on the one hand may cost a life, and on the other result in the waste of expensive treatment and the inconvenience of quarantine.

Many a time the knowledge of the presence of tuberculosis early may render cure possible; and the moral effect of a negative sputum examination

may result in a wonderful improvement in the individual of nervous temperament who lives in morbid dread of consumption.

Typhoid fever can often be diagnosed by a blood examination long before the clinical symptoms are conclusive. The advantages of early confirmatory laboratory diagnoses to the practitioner are sufficiently evident and require no more mention.

The Laboratory of Hygiene is essentially a part of the great health organization of the state. It is the workshop of the health officer, and should be to you what the shop is to the carpenter. The rough work can be done outside, but there is always enough fine cabinet work which must be done in the shop.

To the laboratory pioneers are directly traceable many of the brilliant accomplishments of modern sanitary science. The awful plagues which swept continents, devastating cities and towns, are no more; not because men of medical science have learned to cure these diseases, but because the knowledge of their cause has given a tangible method of combating their spread. Preventative medicine, yet in its infancy, has already done more since its inception to relieve human misery than all the drugs and nostrums administered to cure disease since the world began.

To you as health officers is given the duty of protecting the public, and with the duty is given the results of hundreds of scientific workers who have ascertained accurately the cause of the infectious and contagious diseases with the best means of prevention.

Dr. Briggs says: "The achievements of scientific preventative medicine have now placed at the disposal of the sanitary authorities such *full* knowledge as to the causation of *so large* a proportion of the diseases producing death and of the means by which they may be restricted or prevented that the determination of the average death rate is in your hands."

The modern health officer must possess a broad knowledge and a technical skill. He is required to make diagnoses upon obscure infectious diseases, to decide when these cases should be quarantined, to direct the details of quarantine, to decide when quarantine should be raised, and to disinfect the house after all is over. But not only that—he must be a plumbing expert, must be able to intelligently pass judgment upon a water supply and trace an epidemic, and decide the cause of death in cases suspected of foul play. In short, the modern health officer must be a man of exceedingly broad sanitary training. An attempt is made to supply this training by these schools, but a certain amount of technical knowledge is beyond the ordinary health officer unless he spends a life time in the service. Here again we must call in the expert. Our State Board has obtained the service of an engineer to help you out in many places, and the state has generously supplied you with a laboratory as well equipped for its work as any in the country.

How can the Laboratory be of use to you?

You are perhaps most often called upon to quarantine cases of diphtheria. Put them under provisional quarantine until you have sent cultures from the throat for examination. If you get a positive reply you have authority

for the quarantine and the people cannot blame you. If you are very sure that the case is one of diphtheria, and the Laboratory fails to find the germ, send another culture; if the second report comes back with negative results, you may be fairly sure that the case is something else. A first report is usually conclusive, but there is a bare possibility that the swab may not have touched the membrane, or that the previous use of antiseptics may have hindered the growth. On the other hand one positive result is sufficient to prove the case one of diphtheria from the point of view of the health officer.

Cases of true diphtheria may present clinical symptoms so slight as to make this diagnosis from the clinicians' point of view ridiculous, but these light cases are just as dangerous to those coming in contact with them as the more severe, and are of much *greater* significance to the community than the severer cases which would be confined to the house without quarantine. It has been almost conclusively proven that this disease is usually transmitted directly from person to person; that is, that one person receives the bacilli in a moist, living condition from another by coming in actual contact with the secretions of his throat by kissing, using the same drinking and eating utensils, or by inhaling some of the infinitely small bits of moisture thrown into the air by forceful expirations. The air within six feet of such persons is dangerous, for with every act of coughing, sneezing, or even speaking, bits of moisture large enough to carry bacilli are forced into the air. If not inhaled by another individual, these bits of moisture will settle, vaporize, and the germs die. Hibbard Hill has shown that diphtheria is rarely transmitted by dust from these houses for the reason that drying very soon kills the bacilli.

In the case of diphtheria breaking out in a school or institution not only the patient should be examined, but cultures should be made from the throat of every individual in the building, and any person whose throat shows the germ should also be put under strict quarantine. We have had a good example of the efficacy of such a proceeding within the last year. A case of very mild throat infection occurred in an orphan asylum containing over two hundred children. The case did not look malignant, but the physician in charge prudently took a culture, and a bacteriological examination showed it to be a case of genuine diphtheria. Quarantine was established in this case, and the throat of every child in the institution was cultured, with the result that some twenty of them were found to have diphtheria bacilli in their throats. These cases were put under provisional quarantine, isolated and watched. Nearly all of them subsequently developed clinical symptoms. This examination was repeated several times with the remaining children, though only a few were discovered after the first lot. This vigorous treatment was effective in limiting what promised to be a very serious outbreak to a comparatively few cases and only one death.

Probably the hardest task a health officer has to perform is maintaining quarantine. Every pressure is brought to bear upon him to release the family as soon as the clinical symptoms have subsided. The patient and family can never see the need of remaining prisoners when to all appearances

they are as well as ever. Here again the Laboratory can and should serve you in good stead in the case of diphtheria, but not yet—I am sorry to say—in the other quarantine diseases. You should never under any consideration release a patient until one—preferably two—culture taken from the throat is negative. In this way you are sure that you are not allowing a dangerous person to go out, and you have some definite reason to present to the family for holding them, or at least you can shift the blame upon the Laboratory: and the “cussing” which we get from a distance does not hurt us much and hurts you infinitely less than it would if directed toward you personally. It is always advisable to take cultures also from the others in the family before releasing quarantine. These cultures will usually be found negative, but occasionally someone else will show bacilli, and possibly a prompt administration of an immunizing dose of antitoxin will prevent another case. You can at least devote your energies to clearing the infected throat, which should be free before the family is released.

In the case of tuberculosis, typhoid fever, malaria, gonorrhoea and the other communicable diseases whose bacteriology is known, the Laboratory is more useful to the *physician* than to the *health officer*. When these diseases are under the health officers' jurisdiction, as they should be, the Laboratory will be of inestimable good to you here.

In the inspection of water supplies for sanitary condition and in tracing out possible sources of infection from typhoid fever a Laboratory investigation can be of great value to you. Remember that typhoid fever is essentially a water-borne disease and may be carried from water to milk, vegetables, etc. In seeking the source be sure you have excluded the water before you waste time in hunting up other sources. Also remember that every case of typhoid fever comes from a preëxisting case. Typhoid cannot come from sewer gas, faulty sink drains, or decaying vegetables, but must always find its way into the digestive canal through the mouth from some material contaminated with the discharges,—urine, fæces, sputum, saliva, or perspiration of some other case of typhoid. Unsanitary conditions around the house may predispose to typhoid by enervating the individual and lessening his resistance to infection, and may furnish a breeding place for the flies, which furnish so important a vehicle of infection in this disease. Oftentimes the offending source may be found to be some old well which was supposed to be absolutely pure, but which has been receiving the leachings of a water-closet or barn yard for years and only needed some imported case of typhoid on its drainage area to make it a focus of infection for all who drink its water. One case of this kind was rather amusing. In tracing out the source of some case of typhoid, the health officer had the water of one of these old family wells examined. It showed unmistakable evidence of sewage contamination, and was so reported. The people of the community were shocked, the well had long been sought by the neighbors for its laxative effect from some supposed mineral content. It undoubtedly possessed laxative properties—but so does the water at the end of our sewer, and from the same cause.

The examination of a well supply for the contamination to which is due

a typhoid outbreak is more satisfactory than a similar examination of a river supply. The reason for this lies in the fact that a well will show such contamination for a long time (typhoid bacilli will live months in wells), while in a stream the particular infection may have been carried to the ocean by the time the cases develop. We are often asked to make an examination of the water for typhoid bacilli in these cases. This examination is almost never made because it is not practical, and a positive result must be exceedingly rare, owing to the fact that typhoid bacilli when present in sewage polluted water are so greatly diluted. A one c. c. sample which would be used in making the examination would only accidentally contain the bacilli. Instead of looking for the typhoid bacillus it is customary to test for the presence of the bacilli coli communis, which always accompanies the more pathogenic bacillus and occurs in much greater numbers. This organism is always present in sewage and will live in water longer and multiply more rapidly than the typhoid bacillus, and is, moreover, very easy of detection. Its absence is proof that the water has not been recently polluted with unfiltered sewage; its presence is proof positive to the contrary. It also indicates that the infection is recent. If we can find recent sewage in the water, we have only to find some original case of typhoid fever on the sewage area to be practically certain of the source of new cases.

I will not linger on the further interpretation of water analyses as they have been given you at length in the papers of Doctors Lindsley and Wiltse, published in Volume 1, Number 1, of the "Bulletin," and the paper of Mr. Moat in Volume 3, Number 3.

With regard to the health officers' relation to medical legal cases, and the help which our Laboratory can give him in these cases, I have only to call your attention to the paper of Dr. Wiltse on this subject, published in Volume 3, Number 3. These are cases which usually fall under the health officers' jurisdiction, and burial permits should be refused until it is certain that the case is not one of foul play.

In a state so generally infected with bovine tuberculosis as Vermont, the question of the wholesomeness of slaughtered beef is sure to arise often. In many of these cases, where the lesions are small, it is difficult from an inspection alone to be sure of the presence of the disease. This question can usually be answered definitely by a microscopic examination, and usually the results can be arrived at in a very short time so that a report can be returned in twenty-four or forty-eight hours. Our Laboratory has done much of this work and is equipped to do more. The examination of milk for tubercle bacilli is not so conclusive, for the reason that a single ten c. c. sample of milk may not show the trouble when the milk is really infected. Here again a positive result is conclusive, while negative findings are only presumptive.

The question of food adulteration is one of growing interest. Without doubt Vermont is flooded with adulterated and chemically preserved food products on account of our lax laws on the subject. The Laboratory is at your service for any such examination at any time. We do not have a food

inspector in Vermont, and must depend upon the local health officer for assistance in this work if anything of a crusade is to be undertaken.

I have attempted to mention only a few of the more ordinary ways in which the Laboratory may be of assistance to you. There are every day questions facing you in which a technical examination may help you.

And now in return for this assistance which your Laboratory is eager to give you what are your obligations to it? In the first place your support in the community in which you live. Oftentimes a word spoken to your representative may be of inestimable good to the institution. We may need to call for a larger appropriation in the future. When such time comes we shall depend upon our health officers to stand shoulder to shoulder for the Laboratory of Hygiene—their Laboratory.

Then again in the manner of sending specimens you may be of great assistance to us. Most of the pathological materials should be sent in the outfits provided for the purpose. These are arranged so as to be as free as possible from danger of breakage, etc., and are conveniently labeled and kept in stock at easily accessible places throughout the state. It will only require a small individual effort on your part to procure these outfits, and it will be a great convenience to the Laboratory officials. Furthermore do not keep empty outfits in your office. If you are not ready to use the outfit, take it back to the station from which it was procured, or return it empty to the Laboratory. Five or six thousand of these outfits are now lost in doctors' offices, where they are of no use to any one. Every outfit is accompanied by a blank which should be filled in full. Each item called for should be given in every instance, not for the purpose of making public any of the information, but solely in order that the results may be classified scientifically and returned to you in a way which may be of value. The name of the patient should be given in every case, so that the actual number of cases can be ascertained and so that you may be able to give us further information about the patient if it may be called for at some future time to complete the records. Every fact called for on these blanks is of equal importance in arriving at correct interpretation of results from all standpoints. If these questions are intelligently and carefully answered in the thousands of cases which are gathered here, what a source of information about these conditions our files will be in a short time! The State Laboratory is doing the work free for you health officers of the state, and it is asking only a little, and certainly nothing unreasonable, that you comply with its requirements—as is done in nearly every instance.

In conclusion let me ask for closer touch between the local boards of health and your Laboratory. We can be of great assistance to you in many cases. That is what we are here for, and I am sure *you* can do more effective and thorough work, and withal work which is easier and more satisfactory, if you use us. We are all in one great work,—the stamping out of disease and the improvement of the public health. You must do your part of it—the most important part—and we do another; but it is the same work with the same ends in view. Let us then pull together.

Discussion by Dr. M. J. Wiltse, Burlington, Vt.

There is one thing in connection with Dr. Stone's paper which I will not let escape me at the present time. I hold in my hand a letter which is made out in the form of an affidavit: "This is to certify that on the evening of November 5 last I sent to the State Laboratory at Burlington, by American Express, a culture, at the same time asking for a reply by telegraph if positive. I did not hear anything from this specimen until the morning of November 10, when I received word that the specimen showed suspicious bacilli, which later proved to be the diphtheria germ." Let me state, first of all, that the physician who sent this specimen did not use our regular Laboratory outfit. He used a small vial plugged with cotton batting. Fortunately, we have a system at the Laboratory, and I immediately looked the matter up. I found, however, that the specimen arrived at the Laboratory by express on November 7 on the 5.30 express, not on the fifth as he stated. It was reported to him on the eighth at 11 A. M. Now, gentlemen, it was received on the seventh in the afternoon, and it requires twelve hours' incubation, and was reported on the eighth instant at 11 A. M. Would you ask for any more prompt report? We ask you to fill out blanks so you won't have to complain, and then if you do complain, you will find that it is almost invariably the fault of the sender. You may take our word for it, you will get your report as fast as the mails will travel.

Discussion by Dr. G. R. Sanborn, New Haven, Vt.

Why don't you have these outfits kept with the health officers' throughout the state?

Dr. B. H. Stone, Burlington, Vt.

I suppose that a great many of the health officers would not care to bother with them. They are all numbered and have to be recorded. The drug stores are usually in central places where physicians are bound to go anyway, and are the most convenient places. However, we have nothing to do with the deciding of that matter.

Discussion by Dr. M. J. Wiltse, Burlington, Vt.

We originally started with sixty stations, and figuring at the rate our outfits have been lost with those sixty stations, with some two hundred health officers I am afraid our little bank account would soon be bankrupt. We have over three thousand of one kind out now. They are in the doctors' offices, possibly they have been thrown on the shelf or in the drawer of his desk, and when the time comes to use one, instead of looking it up, it is a great deal easier to go to a drug store and get another.

Discussion by Dr. G. R. Sanborn, New Haven, Vt.

Do you know how many are in the drug stores?

Dr. M. J. Wiltse, Burlington, Vt.

We have a record, and every outfit is charged up. We ask the drug stores to account for them. They write and say they have given them to Dr. So-and-so, and when we write the doctor, we generally receive no answer. The postage will make quite a little item, so the expense is carried on still further. It is impossible for us to establish stations with the different health officers.

Discussion by Dr. E. G. Roberts, Fair Haven, Vt.

I don't like to let this matter go by without saying a word. The Laboratory has been of great assistance to me. It has helped me in making positive diagnoses that I could not make clinically. I would like to impress on the health officers to do all in their power to assist the Laboratory; to do everything and anything we can for its sustenance.

Discussion by Dr. C. W. Peck, Brandon, Vt.

I have said so much on this subject that I hardly feel warranted in saying anything more, but as I am about to leave the hall, I would like to add my testimony to the great assistance and benefit that I have personally derived from the State Laboratory. With regard to these cups and slides, I have lost two or three myself. I don't know where in thunder they are. The State Laboratory found me out. They traced them to me, and I want to say they are onto their jobs. They are looking for me. It seems almost useless for me to say that the State of Vermont without a State Laboratory in a medical point of view would be very insignificant, but we can no more dispense with it than we can with fresh air. It is through the Laboratory that the State of Vermont is more indebted to these two gentlemen sitting on that stand, and to Dr. Linsley who went before them, than any other medical men. It would be impossible for me to feel that my feet were firmly grounded without the assistance of the State Laboratory. I send all samples of sputa up here, and I don't have to wait for any answer either. I get the report just as fast as the mails can bring it. Ever since the State Laboratory has been established, I have been health officer in our town, and I have yet to find them making a single mistake, and they have always put me on my feet, and I shall always stand here and praise them for what they have done. We stand in the front rank on account of the advantages we get through the State Laboratory. You take all the institutions throughout the country and you will find where they are established for the study of germ diseases they have to have a hospital and a laboratory, too. See how we are situated. The State of Vermont is one great experiment station. We have got the patients and we are the hospital, and we report to the State Laboratory and they in turn report to us. You see how nice it is; how indispensable it is. I would not think of pronouncing a case typhoid fever until I had consulted my friends in Burlington. A man last April had typhoid fever. He was a young man who came from Arizona. He contracted typhoid fever in New

York, so he said. The doctor said he had. He came up to Brandon to pick up before taking his physical examination for West Point. He became sick and called me in to see him. I found a disturbance near the veriform appendix. It was a sort of a rebus. I put him in bed; made local application. In about forty-eight hours I found a beautiful petechial spot. I sent a specimen of blood to the Laboratory, and the report came back, typhoid. If you want to study disease and want to know where you are at, you want to put your hand into one of these gentlemen's and they will lead you.

Discussion by Dr. W. W. Styles, South Hero, Vt.

I want to give the same testimony that Dr. Peck has given about the utility of the State Laboratory. My predecessor said to me one day when I was asking him if he ever had any diphtheria in that locality that he had never had a case there. In two or three weeks I had a case of very severe sore throat, but as my predecessor said he never had had a case of diphtheria, I took it for granted this was a case of follicular tonsilitis. I had no tubes, but next morning I found a spot on the tonsil, and then I began to think possibly I might have a case of diphtheria. I sent a culture to the Laboratory later, and in the meantime used antitoxin. The report came in due season from the Laboratory pronouncing it a case of diphtheria. I know if it had not been for this Laboratory that patient would probably have died. "The man who never made a mistake never did anything," said Roosevelt. I made a mistake then, but I will never do it again.

I was called to see a young girl who had a slight diarrhoea and malaise. She had been twenty-eight days before to Williston to a dance and had drank pretty freely of water from a well there. I suspected typhoid fever. I sent a drop of blood to the State Laboratory and, as soon as I could get it back, they reported typhoid positive. I would not dare to practice medicine without the Laboratory. Now, gentlemen, when you elect your members for the legislature this fall, tell them if the matter comes up regarding State Laboratory to back up everything, for we cannot get along without this Laboratory.

Dr. B. H. Stone, Burlington, Vt.

It certainly is very pleasant for the workers in the Laboratory to get such enthusiastic reports, but I was in hopes some one who did not agree with our reports would speak. No laboratory can be infallible. Generally speaking, laboratory work and bacterial work is pretty exact, and the majority of those results will help you. In all sorts of bacterial work the positive reports are worth more than the negative. If we report a case of diphtheria as diphtheria, or sputum as tubercular, that settles the doubt, but if we report a case of tuberculosis as negative, that does not bar the possibility of that case being one of tuberculosis; the same thing applies to diphtheria. Possibly the attending physician failed to strike the membrane when he applied the swab. Very often that is the case and then again the application to the throat of some strong antiseptic may retard the growth of the bacilli.

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Discussion by Dr. G. R. Sanborn, New Haven, Vt.

How long will typhoid bacilli live in well water?

Dr. B. H. Stone, Burlington, Vt.

Typhoid bacilli may live three or four months in well water, and the water will be dangerous during that time. The bacilli die out quicker in cold water than in warm. The amount of sunlight reaching the water and other factors will also affect the bacilli, so that this question cannot be answered very definitely.

QUARANTINE: THE FAMILY, ATTENDING PHYSICIAN AND THE PUBLIC.

BY WILLIAM LINDSAY, M. D., MONTPELIER, VT.

The prophylaxis of any acute specific fever consists in: (1) The destruction of the virus or contagion before it can effect entrance into the system. (2) The adoption of measures which will have the result of lessening the receptivity of the individual or his susceptibility to the disease, by increasing the power of resistance. (3) The strict enforcement of rules relating to quarantine and isolation.

Quarantine means the segregation of possibly infected persons until after the period has elapsed at which they would (if infected) develop characteristic signs of the disease. Isolation on the contrary implies the continued separation of the infectious patient from the healthy until after he has ceased to be infectious.

Quarantine is the third and possibly the greatest means at our disposal in the attempt to check the spread of infectious or contagious diseases, and is accomplished by the strict enforcement of proper regulations regarding quarantine and isolation. It is thoroughly and wholly believed that the enforcement of quarantine regulations has to a marked extent prevented the spread of disease; and that the further spread of disease can be prevented by suitable rules strictly enforced.

The laws of the state, and the rules and regulations promulgated by the State Board of Health relating to the management of contagious diseases, define fully and clearly the duties and requirements of each of the parties; namely, the family, the physician and the public, and the relation they bear to each other whenever a contagious disease is known to exist.

Provision is made "to require the isolation of all persons and things infected with or exposed to contagious or infectious disease; to prohibit and prevent all intercourse and communication with, or use of infected premises, places, or things; and require the thorough purification, disinfection and

cleansing of the same before intercourse therewith or use thereof shall be allowed."

Provision is made that the head of families who know or suspect that a case of communicable disease dangerous to public health exists shall at once report to the health officer the facts, and further it is the duty of such health officer after receiving notice to investigate the cause of such infectious or contagious disease, if one exists, and institute means of prevention or restriction. The rules and regulations define precisely the different infectious and contagious diseases that shall be quarantined and the particular form of quarantine notice that shall be served upon the head of the household in each particular disease. The rules provide that "in any case of smallpox, varioloid, cholera, yellow fever, typhus fever, diphtheria, membranous croup, scarlet fever, measles, whooping cough, mumps, chicken-pox, typhoid fever, or German measles, a plain and distinct notice giving the name of the disease shall immediately be posted upon the house, tenement or premises where such disease exists." A quarantine notice shall be served upon the head of the family in which the disease is reported to be, except in the case of typhoid fever, according to one of the forms prescribed for such purpose. The "full quarantine notice" shall be served in cases of smallpox, varioloid, cholera, yellow fever, diphtheria, membranous croup, scarlet fever, and typhus fever; the "modified quarantine notice" in cases of measles, whooping cough, mumps, chicken-pox, and German measles.

The "full quarantine notice" instructs the family and notifies them that all persons and things on the premises or in the house occupied are to be at once isolated from all other persons and things; that no communication is allowed between any person upon the premises or in the house occupied and any other person whatever, except articles of food and drink and such fuel and clothing as is necessary for the comfort and health of those persons under quarantine; that papers and letters may be received and such pails, cans, bottles or boxes of material as are necessary for the conveyance of the above may be given out, all in the manner and under the condition prescribed by the health officer. The manner and condition of such conveyance should be given in writing by the health officer. Instructions should be given the family that any person in "full quarantine" for any of the diseases mentioned should be confined in a single room or suite of rooms, airy and preferably at the top of the house, and isolated therein; all carriers of infection should, as far as possible, be removed from the sick chamber—for example, carpets, curtains and non-essential articles of furniture. During the continuance of "full quarantine," all dishes and eating utensils and everything else which is removed from the rooms occupied by the sick person and nurse should be soaked for half an hour in a two per cent solution of carbolic acid or Lysol, or in a one to one thousand solution of corrosive sublimate. It should be remembered that corrosive sublimate solutions corrode metals. All dejecta and refuse should either be burned in the sick room or soaked in a liquid disinfectant before being deposited in waste basins. All linen and clothing should be boiled a half hour or soaked in a disinfectant solution the

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same length of time. When the quarantine is to be raised, the patient and nurse should be given a bath with soap and water and later bathed in a solution of Lysol or corrosive sublimate. This bath should include the hair. Their clothing and the contents of the room should remain therein; the room should be prepared for fumigation. Quarantine should not terminate until thorough disinfection of the patient, nurse and premises has been carried out, and until any member of the household suspected to have contracted the disease shall have passed by the incubation period without development of the suspicious symptoms.

The "modified quarantine notice" used in cases of measles, whooping cough, mumps, chicken-pox and German measles instructs the family where such disease exists that no person then in the family who has not had the disease is allowed to leave the house or premises, and that no person who has not had the disease is allowed to enter the house or premises.

The "modified quarantine" should not terminate until the patient has recovered, the premises disinfected and until any member suspected to have contracted the disease shall have passed the incubation period. Quarantine is not terminated until written permission is given by the health officer.

The public is furthermore protected from contamination with any of these diseases by the regulations regarding attendance at school. Notice must be sent in writing by the health officer to the teacher, superintendent or head of any school, public or private, where any member of the family attends as pupil or teacher, of any of the foregoing mentioned diseases, excepting mumps and typhoid fever. No further attendance at school of any member of such family is allowed until notified by the health officer that it is safe to return.

That mumps should be excepted seems strange as there is abundant evidence of epidemics of this disease through contamination at school.

Typhoid fever is now believed to be communicable by contact. In cases of typhoid fever, premises should be placarded only, no quarantine notice to be served. Investigation should be made as to possible source of this disease.

The physician and his relation to quarantine. The law provides that a physician, who knows or suspects that a person whom he has been called to attend is sick or has died of a communicable disease dangerous to public health, shall at once quarantine and report to the health officer.

The regulations state that a physician attending a case of smallpox, varioloid, diphtheria, membranous croup, or scarlet fever, shall carefully and thoroughly cleanse and disinfect himself and his clothing before leaving the house or premises. Do physicians carry out these regulations and take proper precautions that they shall not be the carriers of infection? Even the most careful has been known to communicate disease. A good outfit for a physician in attendance upon an infectious case is an air-tight leather bag containing a long coat or surgeon's gown of sufficient length to come to the floor and button closely about the neck and body, and a cap, two sponges or pieces of absorbent gauze, four ounces of formaldehyde, corrosive subli-

mate tablets and a thermometer for each case. Before entering the house put on this outer long coat and cap; after seeing the patient, disinfect hands and face with one to one thousand solution of corrosive sublimate, wipe the shoes with the same solution. Fold coat and cap, return to bag and pour one-half to one ounce of the formaldehyde upon the gauze or sponge, close the bag and leave until required again. This is only suggestive and not complete at all, but will indicate an easy method to prevent the carrying of infection. The physician can be of great assistance in educating the family and the patient in the usefulness and necessity of quarantine. His words are of more weight and he is more fully believed in than the health officer. The public by the establishment and enforcement of quarantine is not allowed to come in contact in any way or become contaminated by infectious diseases. It is a protection to the public; the family are shut up, their source of income is often stopped, quarantine is a real hardship to them. Why should not the man whose income is cut off by quarantine be remunerated from the public funds of the town so protected?

Quarantine in tuberculosis. The compulsory notification of tuberculosis to the health officer seems almost a necessity. The health officer would be in a position should he be notified to disinfect the premises, when necessary.

Discussion by Dr. J. C. Breitling, Lunenburg, Vt.

In opening the discussion of the very able paper which Dr. Lindsay has just given us, I shall confine my remarks to a few points in which, in my opinion, we as health officers may render our quarantine more effective.

We all are familiar with the very stringent measures adopted in cases of variola, diphtheria, scarlet fever and diseases of like contagion. Here we have isolation of patient and nurse most rigidly enforced and the greatest precautions as regards disinfection observed. But when we have cases over which a modified quarantine is established, would we not often find under close examination our quarantine to mean no quarantine at all? For the old saying is applicable here as elsewhere. "The chain is not stronger than its weakest link." For example, given a case of typhoid fever. The question of complete isolation may be an open one, but should we not insist on a moderate isolation cautioning the family that all unnecessary attendance in the sick room should be avoided? I have in mind cases that occur in private practice. When we recall that with even as perfect sanitary arrangements as at Johns Hopkins 27 per cent of the typhoid cases were of hospital origin, does not the question of complete isolation of the patient seem worthy of consideration? In a recent article in the Journal of the American Medical Association, Dr. Cole of Johns Hopkins has called attention to the inefficiency of the average attempts at disinfection of the excreta of typhoid fever patients. From his article we learn it is essential that the excreta be thoroughly mixed with a suitable disinfectant (one to twenty carbolic solution) fluid, varying in strength with the time elapsed from the voiding of such excreta. Thus mixed they should be allowed to stand for a considerable

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period of time; nearly twenty-four hours, in fact, being necessary to ensure disinfection complete.

When we stop to think that Horton-Smith estimated in one case of typhoid fever the urine to contain five hundred mill bacilli to the c. c., does it not seem necessary to use the utmost diligence? Again in cases of pulmonary tuberculosis, measles, whooping cough, and varicella, do we not often fail to protect family and patient and public, simply because we do not insist on the careful observance of even our modified quarantine. I am sure that those of us who heard the oration on "Preventive Medicine" by Dr. Biggs at Atlantic City a few weeks ago could not fail to be impressed with the possibilities that lie in the further investigation of methods of prophylaxis. The acute infectious diseases of the respiratory tract, viz.: influenza, lobar, and broncho-pneumonia; and those of the gastro-intestinal tract, viz.: dysentery, cholera infantum, and the summer diarrhœas of infants; all these will be more effectually controlled when all state and city boards follow the example of the New York City Board and require their registration.

The adoption of quarantine measures in cases of gonorrhœal and syphilitic infection is a question difficult to solve, and the practicability of such adoption is still a mooted point. Finally, I would again call attention to the necessity of making our modified quarantine thorough as far as we go, insisting upon the strict observance of every detail measure adopted.

Discussion by Dr. S. H. Phelps, Fairfax, Vt.

Under the laws of Vermont, we, as health officers, are required to quarantine infectious and contagious diseases; the people in the rural districts are becoming more and more enlightened on the subject, making the work easier and more pleasant.

I have found in a great many instances that the head of the family where contagious disease existed would notify me that they had measles or some other contagious disease, as the case might be, for the purpose of being quarantined and preventing a further spread of the disease.

Never have I, with one exception, met with any resistance, and in that case they did not believe Dr. Stiles could diagnose smallpox. Later on, I called in Dr. Holton, and he, with his smiling countenance, was able for a time to convince the dear old sister that the family had smallpox. Yes, gentlemen, the public at the present time demand, in most cases, that the quarantine be enforced, and that their health officer go about his duties unmolested. The physician, if he is disposed, can help the health officer very much, and in most instances they do.

The legislature in 1900 passed Act No. 92, which reads as follows: "A physician called to attend a sick person, who finds the cause of such sickness to be of infectious or contagious character and the general public to be endangered thereby, may quarantine such person's residence at once and report the facts to the local board of health. Such quarantine shall continue in force until the resident health officer examines and quarantines." As now provided, this section, so far as I can find, has not been repealed. It would

seem to me, gentlemen, that this section is defective. The law says "he may"; if the word "may" was changed to "shall," making it compulsory with the physician, with a penalty attached, we would then have one more of the first stepping stones to effective quarantine.

Discussion by Dr. E. G. Roberts, Fair Haven, Vt.

I have listened with interest to the paper and discussions on the subject of quarantine, for it is one of the important duties of the health officer. I should like to impress on every health officer the importance of doing it right away, quick; not to leave it until to-morrow morning. I try to go to the house just as early as possible. Last Sunday morning there was in my town a case of scarlet fever which had been reported late Saturday night, and I went as early in the morning as I possibly could. The house is situated about two miles from Fair Haven. One-half way up there I met the head of the family and three children and a lady friend coming down to church. I stopped them and sent them back. The doctor who reported the case was not quite sure of his diagnosis. I went over and found it to be scarlet fever. I quarantined them. If it had not been for my starting early, four members of that family and a friend visiting them would have gone to church and perhaps spread the disease.

Another point which I would like to impress is to isolate the patient, if possible, in an upper room, in the sunniest and best ventilated. I believe in sunlight and fresh air. The doctor should be very careful to have an operating gown that would button up close to the neck. I find it more difficult to have effective quarantine with "modified" than with "full quarantine." With scarlet fever and other diseases requiring full quarantine, I get more effective quarantine, but with measles, whooping cough, etc., it is a very perplexing question, and I would like to have some one enlighten us on that branch of quarantining.

Discussion by Dr. W. E. Libby, Danville, Vt.

We, as health officers, do not follow out the rules as we should. We have a case of scarlet fever; the mother of the child does the nursing; the child is quarantined in an upper room; she takes care of the child, then goes downstairs, without changing her wrapper, prepares the meals and sits down to dinner. The family are allowed to walk about the streets. How much does such a quarantine amount to? We are not particular enough in this matter, and also in the matter of our own disinfection, and as regards suitable garments. I once lived in a town where there was an epidemic of scarlet fever, and I am sure if the health officer had been quarantined the run of scarlet fever would have stopped.

Discussion by Dr. E. E. Ellis, Brookfield, Vt.

There is one point I should like to bring up. I believe that we, as health officers, are not strict enough regarding quarantining of whooping cough. With strict quarantine such as for diphtheria, scarlet fever, etc., it is not

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difficult to control the quarantine; but if we have mumps or whooping cough they consider it a mild disease, and the health officers do not take proper care of the house. We had an epidemic last fall; some of the scholars who had the whooping cough went to school, and some who did not have it stayed at home. I think that is wrong. I think the State Board should impress it more fully on the minds of the health officer that the laws should be strictly enforced regarding it. It is one of the things we should consider and attend to.

Discussion by E. B. Moore, Rutland, Vt.

We just had a case of scarlet fever in our town; the patient was sent to Vermont from New York in a sleeping car; he arrived home in Rutland sick. Two doctors said it was scarlet fever. We took the boy to the isolation hospital, and we had no other case. Of course I do not know the result of those exposed in the car, but we did not have another case of scarlet fever in Rutland.

Discussion by Dr. C. S. Caverly, Rutland, Vt.

Speaking of the authority of the health officer in relation to quarantine, if you will examine No. 113, Laws of 1902, you will see that he has very sweeping authority in this connection.

All cases of "infectious or contagious disease, dangerous to public health" must be reported to the health officer; first, by "the head of a family," and second, by a physician who has been called to attend such a case. Not only must the physician report a case that he actually knows to be contagious, but also that he "suspects" of being such. The health officer's duties after receiving such a report are plainly specified. He shall investigate the source, etc., and institute means of prevention in the name of the local board. Local boards are given very specific authority also in respect to isolating all persons and things infected with or exposed to contagious disease, to prohibit all intercourse with or use of infected premises, places or things, and to call upon sheriffs or constables to assist them in the discharge of these duties.

The same act also prescribes certain penalties for hindering the work of a health officer, removing, defacing or obscuring a placard, or violating quarantine notices.

Discussion by E. G. Moulton, Holland, Vt.

In reporting to the health officers the state provides blanks which the attending physician must fill out. In a rural district the physician returns home after a visit to the patient, and after he gets there he, at his leisure, fills out the blank, and it may be a day, or possibly two, before he has a chance to see the health officer and deposit his written notice. During the meantime, the family, who knows they are suffering with some contagious disease, are running about the town getting things in readiness for their

shut-up. What benefit does the public get of that quarantine? They probably have exposed a goodly number before they are quarantined.

It is two or three days before I get a notice of a contagious disease. Why not have the physician issue the quarantine at once, and shut them up immediately? Then why not telephone to the health officer instead of waiting to write out the notice?

Discussion by Dr. C. S. Caverly, Rutland, Vt.

The question has been raised as to whether the report has ever been made when it is claimed it was made over the telephone. I recall a dispute between a health officer and a physician as to whether the physician had reported such a disease. The physician claimed he reported the disease over the telephone to some of the health officer's family. It is always better to send a written notice, for then there can hardly be any question. They could go by telephone, telegraph, or personal communication, but the other way, though slower, is the safer.

Discussion by Dr. Wm. Lindsay, Montpelier, Vt.

I do not recall anything further that I desire to say in connection with this subject. Dr. Caverly has answered the questions. It has been my experience that quarantine which the physician establishes is just as effective as the quarantine the health officer establishes.

I am glad some of the other contagious diseases were spoken of, but there are others still which we ought to have spoken of, such as ring-worm. It is very common in our locality among our foreign population, and is very contagious.

SCHOOLHOUSES—SANITARY AND UNSANITARY.

BY DR. A. C. NORTON, MIDDLETOWN SPRINGS.

I do not propose to bring before you a deeply scientific treatise on school-house sanitation for two reasons. First, I might get beyond my depth, and secondly, there are data to be had for the asking from the State Board of Health, dealing with that subject. But what I want to bring before you as health officers of the state of Vermont is the fact of the need of improvement in the schoolhouse itself, especially in the smaller towns of the state. I know from practical experience that to promulgate the idea that the present building, which may have been in use twenty, thirty, or even forty years, is no longer suitable for school purposes, to say nothing of condemning it before the annual March town meeting in his report which every health officer is required by law to make, is to stir up a storm of protests from a great many; I think I may safely say from the great majority of the taxpayers of nearly every small town in the state.

Still we have a duty to perform, and when we find the conditions such that they menace the health of children just on the threshold of life, conditions which may cause lifelong diseases of the eye, spinal troubles, and numerous other affections, may actually menace life itself, then it is our solemn duty to bestir ourselves in behalf of these helpless members of each community. The hope of the future of the world lies in the children of to-day, and to force them to spend six hours or more each day in cramped, ill-ventilated rooms, sitting on uncomfortable benches in either an overheated or too cold atmosphere, straining the eyes to see a blackboard placed in an unfavorable light, exposed to germs arising from badly swept and dusted floors, and perhaps to other germs and sickening odors from filthy privies located directly—it is often the case—under the windows, is barbarous, to say the least.

The little red schoolhouse, located in the forks of any convenient cross-roads, without playgrounds, without any modern convenience, although dear to the memory of many of us, has had its day, wherever it is possible to have a more modern building, which with a little effort is nearly always the case. It has accomplished a great work. Many a famous statesman, lawyer, clergyman and physician has taken his first impulse to acquire an education in that little district schoolhouse, which will always have a warm corner in his heart; and not a few of them started up the hill of learning from the little red schoolhouses of our own state of Vermont, but it is now high time for something better.

The schoolhouse of the future must be built on sanitary lines, from the ground up, hence location is the first consideration. It should stand on elevated ground so that good drainage is easily obtained. It must be large enough to insure ample air space to each child, which is about 250 cubic feet, according to the circular issued by the State Board. It should be provided with a basement, where the heating and ventilating apparatus should be placed. Hot air seems to be the best method that is practical in most instances. The cold air should be taken from the outside and supplied to the rooms above after being heated, thus procuring a constant ventilation without dangerous draughts and with an even temperature.

In small rural schoolhouses, where from lack of means it is not practicable to have a hot-air furnace in the basement, the jacketed stove is a good substitute, the ordinary box stove being covered by a jacket of galvanized iron, with an air space of from six to nine inches between the stove and jacket, and provided with tubes made of tin of sufficient size and suitably placed to allow of ingress of fresh air and egress of foul air. A very good plan, with drawings of such stove and jacket, may be had by applying to the secretary of the State Board of Health.

Where there is no cellar the underpinning should be sufficiently high to allow of an air space of at least two feet, and be provided with openings to allow for the free circulation of air.

Ample playgrounds should be provided, that the children may have room

for games of all kinds without trespassing on private grounds or the public streets.

There should be warm, well-lighted and ventilated cloak rooms, at least one each for boys and girls. They should be entirely separate and distinct, so that there need be no necessity for the boys to enter the one provided for the girls, and *vice versa*.

The school rooms themselves should be large and well-lighted, and so arranged that the light may enter from the left and from behind, as under no circumstances should children be obliged to sit facing the light, a condition which you will often find to be the case in country districts.

The blackboards should be placed opposite the windows, never between them. They should be of slate preferably, but when from lack of means or other cause that is not to be had, they should be painted a dull dark color. The walls of the rooms should be finished in a light gray or buff color. The desks and seats should correspond to the size of the pupils, so that the feet may rest easily on the floor.

All doors should be hung to open out, both from the rooms and from the corridors, and in case of high buildings, they should be provided with fire escapes.

If possible, running water should be supplied, and each pupil provided with an individual drinking cup, to be kept in his or her desk, or other suitable place, and used by him or her exclusively.

Wherever it is possible a system of sanitary waterclosets should be installed, with urinals, wash bowls, etc., and proper sewers and drains, in accordance with modern plumbing ideas and devices. I myself believe that wash bowls are important, in order that children may have impressed on their minds the laws of cleanliness, as many children, especially among the foreign classes, are not properly instructed at home as to the importance of cleanly habits, either of person or surroundings, and if the conveniences are at hand the teacher may require such children to use them, thus instilling an idea of the importance of cleanliness in relation to health that will last them a lifetime and be an education in itself. Cleanliness is next to godliness, it has been truly said, and if we can inculcate its importance in the mind of the child we have taken a long step forward in the battle against diseases having their origin in filth.

Perhaps some of you will say that this is not practical. I believe it is, with a little effort. A relatively small outlay of money will provide it, and if we, as health officers, and especially those of us who are physicians, will agitate the question on every occasion suitable, we can do much to mold public opinion, so that parents will demand the best possible school building, equipped with every sanitary device that the means of the community will warrant.

Wherever the conditions are such that modern waterclosets cannot be had there should be two outbuildings, one for the boys and one for the girls, placed at least twenty feet from the school building and from each other, and separated from each other by a high tight board fence. They

should be provided with boxes to contain ashes, sawdust, or road dust that should be used daily, and chloride of lime or other disinfectant should be frequently sprinkled over the contents of the vaults, which should be thoroughly cleaned at least once a month.

The care of the school room itself is important. Paper and pencil, or pen and ink should be used in lieu of slates, slate pencil and sponge. They should be for the individual use of each pupil and should not be used indiscriminately.

The sweeping and dusting should be done at night, and the dusting should not be done with a dry cloth or brush. Use a damp cloth, and so remove the dust from the room, not simply displace it to settle again in another part of the room, as is largely the result when dry dusting is the rule.

If a child appears sick or ailing, the teacher should send him home with a note to the parents, stating why he is sent. Thus an epidemic of some contagious disease may be averted. The filthy, disgusting and dangerous habit of spitting on the floor should not be allowed.

Now, as I stated at the start, this is not a learned or scientific treatise on this subject. My only object has been to call your attention to the need of better conditions in the housing of our school children. Important as this subject is it is one that is often, very often, neglected, parents sending their children to school with hardly a thought of the condition of the schoolhouse. Many of the rural schoolhouses, and I say it advisedly, are a menace, mentally, morally and physically, to the children obliged to attend them. Mentally because of poor ventilation and consequent carbonic acid gas poisoning the mind becomes dull, the child is inattentive and restless, and the teacher, influenced by the same causes, is irritable, loses self-control, and reproves the child in a harsh manner, so marring the pleasant relations which ought to exist between them.

Physically the child is injured by the bad air and the effluvia arising from ill-kept and seldom thoroughly cleaned rooms. The person who acts as janitor very often does what sweeping is done in the morning, after he has started the fire, stirring up a cloud of dust, germ-laden it might be, to settle after the school session opens on teacher and pupil alike, and polluting the air for them to breathe. The dusting process is usually a farce, consisting of flinging an old rag or feather duster around in a hit-or-miss style that does not remove one particle of dust from the room. How often, as physicians, have we observed children who, soon after school opens, especially in cold weather, become peevish, lose their appetites, complain of headaches, have colds, coated tongues; are languid, listless, disinclined for study, or even play, and often become so ill that they have to be taken from school, when they quickly recover. All due in a large measure to confinement in badly ventilated and improperly cared for school rooms.

Morally. I believe greater attention should be paid to the separation of the sexes in our public schools. An eminent divine in a recently published article says: "I have been appalled to find widespread prevalence of the gravest impurity and immorality, not mere indecency, in some of our public

schools, and where perhaps it might least have been expected, and then to find how in very large measure this was due to ignorance of the wrong and of the consequences involved."

I am aware that moral teaching is largely the duty and prerogative of parents. The mother of girls, especially, can do much to instruct their daughters in moral uprightness and in certain physiological truths which they ought to know. And if mothers, why not fathers? Why should the father slide out of a plain duty to his sons? Why should he not teach him to be a clean, upright, moral, pure boy.

But I have digressed from the subject of schoolhouses. Morality can be instilled into the minds of pupils by the arrangement of school buildings and grounds. The sexes should have separate cloak rooms as before stated, and they should not be allowed to mingle too freely on the playgrounds.

The private closets should be entirely distinct—not as I have frequently noticed at small schoolhouses, a single outbuilding provided for the common use of both sexes—and the walk to them should be screened by a tight board fence, so that the modest girl is not compelled to visit it before the eyes of every boy on the playground. For if not, one of two things will happen,—she will either lose to some extent her innate modesty, or she will put off the call of nature for hours, to the certain injury of her health.

To sum up, the modern schoolhouse should be built on elevated ground; it should be large enough to give ample air space; it should be well warmed, well lighted, and well ventilated, and when these points have been secured, with other minor ones, some of which I have mentioned, and others which will readily occur to your minds, if strict cleanliness in the care of the school rooms is maintained, you will have a building somewhere near what a modern schoolhouse should be.

I am painfully aware of the shortcomings of this imperfect paper, but as I replied to the secretary when he asked me to read a paper on this subject I do not claim to be a public speaker or writer, and I am sure there are those before me who could do the subject greater justice. But I am very much in earnest about the necessity of improvement in our public school buildings, and if I have succeeded in calling your attention to the schoolhouse in each of your towns, and if you will remember that no matter whether the conditions are good, bad, or indifferent, there is always room for improvement, and that improvement is education, I am content.

Wherever there is a possible chance for a new schoolhouse, agitate the question, start the ball rolling and keep it going until you have secured a modern, sanitary schoolhouse, built on plans approved by the State Board of Health, and my word for it, you will feel good for yourself, as a health officer not exactly looking for trouble, but still not dodging any that comes in your line of duty.

Discussion by H. H. Seely, Richmond, Vt.

I am glad of this subject, for it is so broad. I should like to speak briefly upon a point that has not just been touched upon—the sanitary value of

artistic schoolhouses—for it is a branch that has been attracting much attention lately, and rightly, for it has a direct bearing on the health of the pupil. Of course it is largely in connection with our districts.

We all recognize the need of pure air in the school room, not only as a preventive of disease, but also because the pupil can do more work with less effort in a well ventilated and well lighted room than in one of common construction. And for these same two reasons we should have better arranged and more artistic school rooms.

We, as physicians, are often consulted by parents as to whether they should not take their child from the public school, and sometimes we have to advise that this should be done.

It is especially on this class of older nervous children that we notice the effect of the unsightly broken walls and rough boards in the school rooms. To them these things are a distraction and irritation, keeping them from their best work because their nerves are under tension. Fortunately this applies to but few scholars, and, of these, those that do remain in school soon get to an age when they are sent to a high school, where the conditions are better than in the district schools.

On the younger scholars the effect is felt in a different way. On them the untidy surroundings have a tendency to make them lawless, and it is here that we find the most disorder; the throwing of spit balls is a favorite amusement, and the child expectorates on the floor; things which they would not do in a tidy room.

Those of us who have been connected with any of the hospitals where there were many children, have noticed the ease with which the little waifs from the streets could be governed after they were admitted to the wards. Everything is neat and orderly, and the children seem to expect to obey and to do what is wanted of them.

We should consider, too, the effect on the health of the teacher. With neatness and order about them the children are less likely to be disorderly, and their minds are on their work, and the teacher can do more for the individual scholar without taking her health.

Just what should we, as health officers, do in the matter? Each school district will present a different problem, yet where it is needed, perhaps the first thing that we can do is to suggest to our school boards that the school walls should be in better shape. Then the blackboards in many cases can be much improved. Generally in our district schools the floors are very rough and uneven, and this should be remedied, for such a floor cannot be kept neat or clean. The use of flowers on the teacher's desk will add a bright touch to the room, and for these the teacher can easily arrange. Later we should expect that good pictures and other works of art should adorn the walls.

One or two more reasons why we should be interested are these: Cleanliness is one of the first requisites for health, and a child does not have the incentive to be clean amid surroundings devoid of beauty. Another reason, a child spending a few hours a day in a cheerful school room will carry with

him a desire for these things in his own home, and this in itself is a sanitary education to the family as well as to the child.

In conclusion, do we recognize to its fullest worth the sanitary value of artistic school rooms? Are there not other than æsthetic reasons why our school rooms should be more neatly arranged?

Discussion by Dr. D. C. Noble, Middlebury, Vt.

All I shall say regarding schoolhouses in our cities and large villages is that I believe it to be of the utmost importance that the basement of the building should be as well ventilated and hygienic in every particular as any story above it. That the coat rooms should be of sufficient size, constantly supplied with an abundance of pure, warm air, and should receive as much sunlight as possible.

Pretty good supervision exists over schoolhouses in the large centers, but the attention of the public should repeatedly be called to the unsanitary condition of some of the schoolhouses in rural districts. I say *repeatedly*, because it will be only after long-continued, earnest, tactful work on the part of a few citizens who are already aware of the gross negligence existing that the great majority of our people will be induced to give proper attention to this subject, and realize that upon every adult rests a share of the responsibility of endeavoring to make school life not only tend to preserve, but improve, the physical condition of the pupils.

I am not a pessimist, and fully realize that most schoolhouses and school conditions are infinitely better than they were even ten years ago, but much remains to be done. Occasionally a schoolhouse may be found without a basement, with large cracks in the floor, the walls and ceiling dingy, with seats and desks too high or too low, improperly lighted, and unevenly heated, with no means of ventilation except the opening of windows or doors. Schoolhouses which are thoroughly cleaned but once or twice a year, where dry sweeping is practiced. The closets for the children's wraps are dark and not very warm, and every other appointment in and about the schoolhouse equally unhygienic.

With the above conditions prevailing, parents wonder where their children contract catarrhal colds, why they suffer from eye strain, headaches, spinal trouble, and many other ailments. Such environments as above mentioned also tend to degrade the morals, and children become careless and are not careful about keeping clean. Cleanliness of one's person tends to keep one's thoughts pure.

In connection with compulsory attendance upon school, I would like to have a law enacted and enforced, making a reasonable degree of cleanliness obligatory. The remedy for such deplorable conditions rests with the people where these conditions exist. The argument that they can't afford anything better is not worthy of consideration; on the other hand they can't afford to allow unwholesome conditions to continue. At least the inside walls and ceiling of all schoolhouses should be frequently painted a light color, dry sweeping abolished, and good ventilation secured. To equalize

the distribution of heat and provide for a consistent change of air, I would like to see some of the rural schoolhouses provided with a stove in one end and a fireplace in the other, and the lower sash of several windows shut down on a board, thus allowing the outside air to pass between the lower and upper sashes. I am aware that a fireplace is not an ideal way of heating, but am sure the above method would be a great improvement over the one stove system. Every school official, from the highest to the lowest, should endeavor to acquaint himself with the most approved means in use for the preservation of health, and constantly labor to instill these principles into the minds of the children under their care. Teachers can do much, but not all. Early impressions are most lasting, and by devoting more time to teaching the fundamental laws of health we not only help the children themselves, but as time goes on they in turn will instruct those who follow them.

In this age of unparalleled mental activity is it not true that for want of proper sanitary study and oversight there is a tendency on the part of schools to cultivate the intellectual faculties at the expense of the physical well being?

Discussion by Dr. C. S. Caverly, Rutland, Vt.

There is one phase of this subject which you will allow me to say a word about, and that is regarding the pupil. As you all know there is a great deal of attention being paid to the healthfulness of the pupil in the public schools at the present time. A great many of the city schools are adopting a plan of having a medical inspection of the schools to weed out the infectious diseases. That is probably coming to all of us, even in the rural parts of the country. The physical condition of the pupils will be placed in the hands of the physician. Health officers ought to impress upon the directors and school teachers as far as they are able that not only scarlet fever, measles, whooping cough, etc., are dangerous to schools, but these catarrhal colds are very dangerous. You heard what Professor Flick said,—that colds were not necessarily the result of draughts, but due to germs. They are the result of contagion in a great majority of cases. Children who go about sneezing and coughing are dangerous to the rest of the school. I have emphasized this matter of coughing invariably. The cough may seem very trivial, but scarlet fever and whooping cough are ushered in by a cough. You know very well that tuberculosis, and measles, and whooping cough, and ordinary colds should be classed in the same category, and those afflicted should be excluded from the schools for the child's sake, and as well for the welfare of the other pupils. The child should be sent home with a polite note, asking for an investigation of the cough. There is a movement on foot, centered in Chicago, for the examination of the eyes and ears of every child in school. This movement has been endorsed by the American Medical Association and state associations throughout the country. We are in touch with the superintendent of education, and he probably will adopt some rules making it compulsory for an examination of every pupil's eyes and ears. You will have a good opportunity to back up the teachers in carrying out that work.

It is a very important work and should be carefully gone into. The ears and eyes of pupils by statistics are shown to be on the wane. The examination can be made by the teacher by the use of the watch to test the hearing, and for testing the eyesight. She can fill out the blank, and if the teacher finds anything deficient, she can ask them to consult some competent oculist regarding the matter.

Discussion by E. G. Moulton, Holland, Vt.

I am very much pleased to hear this subject discussed so thoroughly. It certainly is a subject that interests us all, and as far as my experience goes as school director and health officer, it has been one that has perplexed me very much. This gentleman alluded to cleanliness. That certainly is a very good thing in any school. I have supplied every school district with proper appliances—with a closet, and with individual drinking cups.

Now, as to chewing pencils. At night they are all thrown into one box, and in the morning passed around, and possibly the child that had diphtheria or tonsilitis yesterday may be sick to-day, and his pencil is passed to some other child, and thus that disease is communicated to all the scholars in the school. I furnish a box, and the child's name is put on the top and he gets his own pencil every morning, and in that way I hope to stamp out contagion from chewed pencils.

Most of our rural schoolhouses are papered, and I think that is a very bad plan. I have had the paper taken off and had them sheathed up. We did not think anything about whooping cough twenty-five years ago. If a child had the disease he was allowed to go to school and go about the streets and scatter the disease broadcast, but now as soon as a scholar comes down with the disease or has any symptoms that would indicate he was going to come down with it I send him home. I have gotten myself into trouble a few times about this matter, but I feel that it is for the good of the child and for the good of the school, and I am sure, gentlemen, you certainly will agree with me that it is.

Discussion by Dr. A. C. Norton, Middletown Springs, Vt.

I have n't anything further to say upon the subject. I was in hope that some one would bring up the subject of disposition of sewage, and I also hoped some one would give me a little hint in that line, and something about the Smead system.

Discussion by Mr. E. B. Moore, Rutland, Vt.

The Smead system: It is conveyed air through the closet in which all of the liquid is dried by air passing over it. It passes down into a large duct. It requires one four and one-half feet square in a schoolhouse of six rooms. It dries everything up by evaporation. The air is brought from the outside through the furnace to the room, and then down into the closets. It is rather an expensive system and has not proved a complete success in Rut-

land. We have discontinued its use in one schoolhouse and probably will in another. In the Smead system the floors are all double, and the current of air passes between the floors. A closet of that kind can be taken care of easily, and can be put in without water connections, and is absolutely odorless. Solid excreta are dried up and there is no odor. If a room gets too warm and the windows are opened, the Smead system proves a failure. I have been in some of the rooms in Rutland and I have wondered that the pupils could do anything, for the odor of the rooms was terrible. The Smead system would certainly not be recommended by any sanitarian of to-day.

THE REGISTRATION OF VITAL STATISTICS.

BY H. B. WHITTIER, RUTLAND.

I am requested to say something about the practical working of the present registration laws. It is not necessary to say to such a gathering as this that the correct registration of births and deaths is a matter of great importance. The fact is apparent to every one who has to do with collecting and compiling vital statistics, but it is recognized by only a small percentage of the people in general. Only when it becomes necessary to consult such records does the average person realize their value, and possibly it is only when the desired record cannot be found, or it is so incomplete or incorrect as to be of no value, that he fully realizes the importance of correct statistics.

So far as I have been able to judge, the change in methods has not been attended by any serious difficulty, but this may have been due in my case to the fact that the blanks we are now using call for only a little more information than did those which were in use in Rutland before the present law went into effect. Since I have been clerk there, we have used only one kind of blank furnished by the state, the blank for additional information concerning births. It is possible, for this reason, that the laws have worked more smoothly in Rutland than in some other towns and cities in the state. But, even if there has been some difficulty in getting accustomed to the present order of things, it must be evident to every one that the present laws are far in advance of any that have preceded them, and, if their provisions are carried out faithfully, improved statistics will be the result. Correct and complete statistics should be the result aimed at, and if the present laws do not make this possible, they should be amended until it is possible. I assume that the registration laws are brought up for discussion at this time, that suggestions may be considered with a view of making them still more efficient. I have a few suggestions to offer and will give them as briefly as possible, beginning with the death certificate.

A majority of the death certificates filed in my office during the past year were complete; that is, all, or nearly all, of the questions were answered. I assume that all the information was given that could possibly be obtained. In nearly every case the most essential facts were stated, but in some instances the name of the informant was not given properly, while some certificates did not contain all the data called for in the left-hand column. The certificates, as a whole, showed care on the part of the physicians, while in many of them could be seen evidences of the hand of the health officer, who never failed to make necessary corrections, to decipher illegible entries, and supply missing data when possible to do so.

During the past year several persons whose names figured in the certificates as informants have denied giving some part of the information as found in the left-hand column. This raises a question between the informant and the physician which might be avoided in the future by having this part of the certificate written and signed by the informant. This might not be practicable in every instance, but when possible to have it done in this way, some one will be responsible over his own signature, and in his own handwriting, for this part of the certificate, as the physician is now responsible for the information in the right-hand column. An objection might be made to having a certificate in two kinds of handwriting, but the appearance of the certificate is of secondary importance, and I have known of cases where its appearance would have been greatly improved if the informant had had a hand in making it.

I understand that the physicians are requested to use the Bertillon classification of diseases in making out the death certificate, and would suggest that this classification be printed on the back of the certificate. There is ample space for it, and, if there, it will be easy to refer to and there will be no excuse for the physician not using it.

I would endorse the suggestion made by Mr. Allen at the meeting last year that a place be provided for filing the certificate when it is deposited in the clerk's office, and I would have the space on the face of the certificate, if possible.

I would also suggest to the health officers present that they always write into the certificate the place and date of burial if the physicians do not do it. This is of special importance when the body is taken out of town for burial, for unless the death certificate shows where the burial is to be made there is no record in the clerk's office of this important fact.

Paragraph 2 of Section 8 of Act 114 reads as follows:

"Every sexton or other person having charge of a cemetery, tomb, or receiving vault, shall deliver to the clerk of the town or city in which such cemetery, tomb, or vault is located, all certificates of permission for the burial, cremation or removal of dead bodies which he shall have received during the first week of every month."

I have not been able to find any directions in regard to taking care of the burial permit after it reaches the clerk's office. It is expected, of course, that it will be kept on file in that office and be subject to inspection, the same as

the death certificate, but no provision is made for its becoming a part of the permanent record. In my judgment, the law does not go far enough in this respect. Provision should be made for taking better care of the burial permit, and perhaps I may give my views of how it should be done by telling you how these permits have been kept in my office during the past year.

When the present law went into effect, I had made for my office some burial permits the same size as those furnished by the state, with the addition of the margin for binding. On the back are extracts from Sections 8 and 10 of Act 114; following these is a certificate to be filled out and signed by the undertaker, stating how he has disposed of the body; and following this certificate is another to be filled out and signed by the sexton or keeper of the cemetery, stating that he has buried the body or placed it in the vault, as the case may be. There is also a space for filing the permit when it is returned to the clerk's office.

The burial permits filed in my office last year were bound with the death certificates, each following the proper certificate, while those issued for the burial of persons who died in other towns or states were placed in order according to the date of death. The index has two columns, side by side, one for the certificate, the other for the permit. Provided each one who had to do with the certificate and permit did his duty, it is possible to trace the body of each person who died in our city last year and was buried there, to its interment by certificates from the physician, undertaker and sexton, in the order named, and these certificates are a part of the permanent record. A suggestion made by Mr. Stillson in his address here last year could be used to good advantage in the sexton's certificate, and that is to provide spaces for inserting the number and location of the burial lot. I would suggest the adoption of such a burial permit as I have described, and that provision be made for its being bound with the death certificate, and indexed, so as to become a permanent record.

I would also suggest the adoption of a removal permit to accompany a body to be buried in some other town or state, to be made up as follows: The face to be a copy of the death certificate, with that part of the present burial permit following the word "address" printed on the back of the permit, together with spaces for filing, and for the endorsement of the local health officer. I would also have the undertaker's and sexton's certificates on the back; would have the permit bound in the permanent record; and would have it serve as authority to the sexton to bury the body it accompanies, after it has received the endorsement of the local health officer.

Such a permit would be particularly valuable when a resident of this state dies in some other town than the one in which he has lived, and is brought home for burial, for the clerk's office in his home town would have a complete record of his death and burial. Such a permit would also furnish complete data when bodies are taken out of the state for burial, something that would be appreciated here if bodies brought from other states were accompanied by a permit containing all the information found in the death certificate. This result could be accomplished just as well by having the

burial permit made in the same manner, but the information found in the death certificate is not essential in the burial permit when the two are to be filed together, so the use of such a removal permit would save work for the health officer, even though he would have another blank to care for. I am sure that the idea of having the permit a copy of the death certificate is practical, for it has been tried in Rutland for several years with good results.

No doubt some may wonder why so much stress is laid upon the preservation of the burial permit in a permanent manner, but to any one residing where a good many bodies are brought from other towns and states for burial it will not seem strange. Over fifty bodies were brought to Rutland for burial last year. At least ten of these persons died in some other state, and the majority of this number, if not all, were residents, or former residents, of Rutland. Should there not be a permanent record of their burial? Who knows the service it may be to some one fifty years hence, when the place of burial is remembered, but the place of death forgotten. Does any one suppose that the burial permits filed to-day and not bound together will be in existence fifty years hence? And yet one of these permits may be the only record in this state of the death of the most prominent person in your town who died in some distant state and was brought home for burial. If it is preserved, it may be of inestimable value in the future, for we are not making these records for to-day; they become more valuable as time goes on.

If the laws of this state contained such a provision as is found in the laws of Rhode Island (and I think Massachusetts laws contain a similar one), the question of furnishing each town and city with a complete record of the births, deaths, and marriages of its residents occurring in some other town or city in the state would be solved. It is possible that if the laws are to be amended in this respect, it would be well to adopt a provision similar to the following, which is from the laws of Rhode Island:

"SECTION 2. The clerk or registrar of each town and city shall on the first day of each and every month make a certified copy of all births, marriages and deaths recorded in the books of said town or city during the previous month, whenever the parents of the child born, or the bride, or the groom, or the deceased person, were resident in any other town or city in this state, or in any other state at the time of said birth, marriage, or death; and shall transmit such certified copies to the clerk or registrar of the town, city, or state in which such parents of the child born, the bride, or the groom, or the deceased, were resident at the time of said birth, marriage, or death, stating in case of a birth, the name of the street and number of the house, if any, where such parents resided, the place of birth of such parents, and the maiden name of the mother, whenever the same can be ascertained; and the clerk or registrar so receiving such certified copies shall record the same in the books kept for recording births, marriages, and deaths. Such certified copies shall be made upon blanks to be furnished for that purpose by the secretary of the state board of health."

It is unfortunate that there is not more uniformity in registration laws.

If there were no difference in the laws of each state so far as they apply to the form of certificates and permits and to the certifying of births, deaths, and marriages from town to town and state to state (as referred to in the section just quoted), many difficulties would be avoided. I see no reason for a difference in the form, even if there is a difference in the methods of keeping and recording certificates and permits. We need just the same information for making up a complete record in Vermont as is needed in Massachusetts or any other state, and I believe it is only a question of time when registration, marriage, and divorce laws will be practically the same in all states.

I do not think that the birth certificates filed in my office during the past year were made up as carefully as the death certificates. I received about two hundred and fifty certificates, of which nearly half were so complete that it was not necessary to ask for additional information, but the remainder of live births called for the use of the additional information blank. Nearly all these blanks were returned, and they showed that the sex was wrong in two of the certificates; the date of birth in three; the surname in four, while less important errors were quite numerous. Of course the errors in sex would not have occurred if the given name had been written into the certificate, but the other errors would have remained if the certificates had been so complete that the additional information blanks had not been sent out. You may be wondering, as I did, how many of the certificates for which no blanks were sent out had errors similar to those mentioned. It is fair to presume there were several.

I have no suggestion to make about the birth certificate itself, for it seems to cover the ground thoroughly, but I will make the following suggestion in regard to the blank for additional information: I think it should be a copy of the birth certificate, and that the clerk, when he sends out one of these blanks, should be required to write in all the data found in the certificate, instead of marking with a cross the spaces he wishes to have filled, as is done at present. This would give the parents an opportunity to correct any errors in the certificate, as well as to supply the additional information. On the back of the blank there should be, in addition to the extracts from the law, or in place of them, a few lines of plain instruction about filling out and returning the blanks. There should also be a place for filing them when returned. A good many persons do not understand what is wanted by reading the extracts from the law printed on the back of the blank. I used to send out these blanks without additional instructions, and the result was that many of them came back incomplete, while the fee paid by the city was either sent or offered me in many instances. Then I sent with the blanks typewritten slips explaining just what was wanted, and that the city pays the fee, and the results have been much more satisfactory. I write into each blank as much of the data found in the certificate as the space will permit. The result of this has been the correction of many errors that otherwise would have passed unnoticed.

I don't suppose it would answer to take off from the certificate the line for

the given name of the child, but I consider that the physician who leaves this to be filled out later is doing the child a favor, provided the additional information blank contains all the facts given in the certificate. I am aware that these blanks go to the same persons who gave the information in the first place, but some one is responsible for these errors.

One of the best features of the present law is that of having the records made up of the original certificates. It places the responsibility on the makers of the certificates instead of sharing it with the clerks, who, in copying the certificates into a record book, undoubtedly made some mistakes. One of the unpleasant features of the law is the caring for the loose certificates and permits during the year. It has been suggested to me that the loose leaf ledger binder might be used for a temporary binding; if any one present knows of something better, I would like to be informed about it.

I wish to say a word in closing about the responsibility for correct statistics. More than ever before this rests upon the physicians. The majority of physicians are careful and painstaking, but until all realize the importance of making up these certificates carefully and returning them promptly, we shall have some records that are not as they should be. A few physicians are still writing certificates with a pencil; are still giving initials instead of the full given name; are still giving the place of birth as Vermont or New York instead of giving the name of the town in Vermont or New York, or are giving the names of the towns without stating whether they are in Vermont or California. But certificates have been much improved during the past year, and possibly the time will come when every one will realize the importance of doing this work thoroughly and carefully; and we shall have correct statistics.

Discussion by A. E. Cudworth, South Londonderry, Vt.

The purpose of the registration law, so far as affording the proper officers prompt information in cases calling for quarantine regulations, seems to be fairly met and reasonably satisfactory to that end.

For furnishing data and statistics available for use in way of formulating, supporting or disproving theories regarding diseases, etc., there seems to be sufficient provision in the existing law. There is further the very important matter of providing means of furnishing evidence as to births, marriages and deaths for use in the courts and in connection with other matters, not in litigation, which call for proof of such facts. This seems to me to be insufficiently provided for in the law as it stands. A *record* of the facts as set forth in the certificates of births and deaths, made in a book kept by the town clerks—in the manner record of marriages is required to be kept—would be more satisfactory as it seems to me.

The ability to secure proper certified copies of records, these as well as all others, should be at no time interrupted. No one knows just when the necessity may arise for use of such copies, nor how urgent may be the need of *immediate* procurement. Annually in the larger towns, and once in five years in all, there is a period, as now provided by law, when procurement of

such copies is an absolute impossibility. The sheets sent for binding into a "permanent record" are beyond the reach of the proper certifying officer, who cannot then furnish copy thereof.

What is the advantage of the existing method over the one proposed? It must be, surely, one of importance and moment to offset the inconvenience suggested, and there is reason to doubt if it really exists. The liability to loss, mutilation or destruction of these certificates pending the time when they become *records* to remain in the custody of the proper certifying officers—town clerks—especially considering their migrations provided for in the Act of 1902, is a matter for serious consideration of itself.

What profits it all? Why is not the record of marriages made up by binding the several papers filed from which the record is required to be made, if there be any advantage in this way?

In the matter of permits for the burial or removal of bodies of the dead there seems abundant room for improvement in the statutory provisions. Can the health officer extend his jurisdiction beyond the boundaries of his town, or does the law give him any jurisdiction outside its limits? In other words, can the health officer of the city of Burlington grant a permit for removal of a body to Rutland and its interment in the latter city? If the answer be "No," as the language of the act and the frame of the blanks seems to indicate, how is it possible to lawfully bury a body in any town other than that in which the death occurs? The certificate of death must be filed with the health officer of the town in which the person died; he issues removal permit and later lodges the certificate in the town clerk's office of that town. (Section 10.) The health officer of the town in which it is desired to make burial cannot issue burial permit, for he has not the death certificate. (Section 10.) The sexton may not bury the body without this permit, under penalty. (Section 6.)

Section 14 of the act (No. 114, Acts of 1902) gives extraordinary powers to a town clerk and provides no appeal from the ruling or decision of the court thus created. The most important interests of people are to be affected by records "corrected" or "made" up from an *ex parte* hearing before a person, possibly, even probably, unaccustomed and unfitted to act in a judicial capacity in matters of such moment. The results and effects of the town clerk's decision may—nay must—be the most far-reaching, affecting the living, the property and memory of the dead, and those yet unborn. The power is too great to be thus lodged in such hands, for the record when "corrected" or "made" up under this section may, by certified copy thereof, be used to prove the fact of a birth, a marriage, or a death (No. 44, Acts of 1902), upon which fact may hinge the disposition of large property interests and even in certain cases the liberty of the citizen. If a record be not made as required by the earlier sections of this act, why not leave the matter of an unrecorded marriage, birth, or death to be established in the tribunal where the matter requiring such fact to be proven arises? All parties in interest may then be heard and there would be as little liability of miscarriage of justice and equity certainly as in the provisions of Section 14.

Discussion by T. R. Merrill, Montpelier, Vt.

Mr. Whittier and Mr. Cudworth have covered this subject so thoroughly that I have very little to say. I want to back up what Mr. Cudworth said in regard to correct records. I am in favor of retaining the records. I object to letting records go out of the office. In our town we send them over to Brattleboro every six months, which is according to law, to be bound. During the time that they are at Brattleboro I frequently have calls for certified copies which I am unable to furnish. This, of course, under the present law is unavoidable, but I feel that this law should be corrected. There should be other provision for the binding of the records, so that an official record could be left at the office at all times. Our birth returns are not good. We get around it by having a man just before the end of the six months and a day or two afterwards go, and instead of filling out these blanks, we have him get the information at each house where there has been a birth. We pay him for it and in that way our birth returns are quite satisfactory. The physician of course cannot afford to do that. The returns you get on the blanks are as a rule misleading.

There is very little left for me to say. I am not in favor of the law as it is, but I am not in favor of too much legislation every two years. In our office we have a book with only three years' record. There should be as little change as possible in the method of recording. We should keep the work as near as possible in line with other states, and have a uniformity throughout the union.

Discussion by H. H. Swift, M. D., Pittsford, Vt.

Regarding birth and death records, is it not quite possible when the sole record is sent to the bindery to be bound that some part of it might be lost, and so the complete record entirely lost? Would it not be much more valuable to have duplicate copies made at once?

THE CO-ORDINATE FUNCTIONS OF FUNERAL DIRECTORS AND HEALTH OFFICERS.

By J. WARREN ROBERTS.

The health officer and funeral director are working along the same lines in many ways, and I think it is very important—yes, and a necessary thing—that they coöperate in their efforts to give the public the best service to be had. The physician's and health officer's profession is to create good health. What do we mean by health? What is its definition? The most satisfactory one with which we are acquainted is one founded upon Bichats' definition of "life," which he declares to be the "organization." From this we describe health as a perfect organization in perfect action, and disease divergent from health as disturbed organization in disturbed action.

"You that have health," says he, "and know not how to prize it, I'll tell you what it is that you may love it better, put a higher value upon it, and endeavor to preserve it with more serious, stricter observance and tuition. Health is that which makes your meat and drink more savory and pleasant; else nature's function of eating and drinking were a hard task and slavish custom. Health is that which makes your bed easy and sleep refreshing, that revives your strength with the rising sun, and makes you cheerful at the light of another day. It is that which fills up the hollow and uneven places and makes your body plump and comely. It is that which dresses you up in nature's richest attire, and adorns your face with her choicest colors. It is that which makes exercise a sport and walking abroad the enjoyment of your liberty. It is that which makes fertile and increaseth the natural endowments of your mind and preserves them long from decay. Makes your wit acute and memory retentive. It is that which supports the fragility of a corruptible body and preserves the vigor and beauty of growth. It is that which makes the soul take delight in her mansions, sporting herself at the casements of your eyes. It is that which makes pleasure a pleasure and delight delightful. Without which you can solace yourself with nothing of earthly felicity or enjoyment."

But now take a view of yourself when health has turned its back upon you and deserts your company. See then how the scene is changed, how you are robbed and spoiled of all good comfort and enjoyment. Sleep that was stretched out from evening to the fair bright day is now broken into pieces and sub-divided, the night which before seemed short is now too long, and the downy bed presseth hard against the bones. Exercise is now toiling and walking abroad the carrying of a burden; the eye that flashed as lightning is now the spacious body of a thick cloud rolling from east to west. Swifter than a celestial orb it is now tired and weary with standing still, it has lost its penetrating influence and has become obscure and dull. If such then be the true picture of the opposing conditions of health and disease, what stronger inducement can any one have to give him an interest in the study and observances of nature's institution, seeing these are the only means by which "the beloved ends and wished-for enjoyment" can be attained. What calling or profession is of more vital importance than is yours, to preserve health and prevent the spread of infectious and contagious diseases, and the public is looking and expecting this from you. The funeral director is called when the family are grief stricken. He is called upon to perform the last sad rites. He is called upon by people in all walks of life and to care for the results of all kinds of diseases, including contagious and infectious. He is expected to protect the family and friends from all danger as well as to care for the deceased. He is called upon to care for all kinds of diseases, many times for transportation at a long distance, and the public expect that we are capable of all this if we are in the profession. And I ask you, gentlemen, what profession next to the medical profession is it more important to have a thorough knowledge of than the profession of funeral directing and embalming. Our national body has been

organized twenty-two years and have been hard at work for improved conditions. Nearly all of the states in the Union have state associations. The State of Vermont association has been organized only four years, and we are proud to say that we have made more progress than many states that have been organized much longer. The object of our association is educational legislation and elevation in our profession. The most important part of our work in common with yours is the care of contagious and infectious diseases and transportation of bodies. Contagious and infectious diseases call for special attention in your work, and is it not as important that they should have proper care after death as well as before? It was in 1895, I believe, that the Conference of State and Provincial Boards of Health, the American Association of General Baggage Agents and the National Funeral Directors' Association began working together to formulate some practical rules, which were put into force by the Conference of State and Provincial Boards of Health at its meeting in 1897. These rules were slightly amended at the meeting in 1902 of the same organizations.

When we reflect upon the improved methods that are now pretty generally current throughout the country, as compared with those that existed but a few years ago, as well as the manner in which those methods are intended to be still further simplified and improved in the near future, it is fair to assume that our efforts have not been without good results, and that therefore to the Conference of State and Provincial Boards of Health, the American Association of General Baggage Agents, and the National Funeral Directors' Association that great credit is due for all that has been accomplished in the way of improvement referred to. But our work has only begun, we cannot yet rest upon our laurels and claim that perfection has been reached. The very first rule concerning the transportation of dead bodies absolutely forbids the transportation of bodies dead from yellow fever. When this rule was made in 1898 this was sound doctrine, according to the light which we then had. It was a great surprise to the medical profession to be told, as they were in 1900, that neither the yellow fever patient, nor his dead body, nor any of his personal belongings, are in themselves capable of conveying the disease to other people, yet it is simple enough. The living infective agent of yellow fever does not pass directly from man to man, but lives part of its life in the body of a mosquito.

The medical department of the United States army sent in 1899 a party of experts to Cuba to study yellow fever, under the leadership of Major Walter Reed. Does any single achievement of American brains or American pluck in the past five years surpass this work of the yellow fever commission of the United States army? I can think of nothing greater.

It may interest you to know that the body of a person dead of yellow fever might be passed from hand to hand all the way from Havana to Burlington and not one person would be infected with yellow fever from that body. More wonderful still, if a person in Havana were infected with yellow fever, he could start at once for Vermont, he might sicken and die in our city and not involve the slightest danger to the public.

Is it not time, gentlemen, that we should interest ourselves in the care and transportation of dead bodies, when there are such restrictions put upon a harmless case such as this, and at the same time there is no protection to the public in the case of tuberculosis and other harmful diseases? The Americans are a traveling people, and their ante-mortem wish, as well as the wish of their friends, in the event of death away from home, is, as a rule, that they be sent home for burial. American people demand the best from all the professions as well as in other walks of life, and what is true of the American people is true of the people of Vermont. They demand the brightest and best men to represent them at Washington. Do you know that the people of Vermont have more money in savings banks and trust companies according to their population than any other state in the Union, and what Vermont and the American people demand they are willing to pay for.

Now, gentlemen, what is our opportunity and duty? We must admit that we have not the best; are we content to rest where we are and acknowledge that we cannot progress? Vermont should have just as good legislation and protection in her health department and in the care of her dead as any state in the Union, and it is within our power to have it. I have drawn up a bill to present to our legislature this fall, and I hope and expect to have your hearty coöperation and support in this measure.

Our National Commission expects to have national legislation along these lines in the near future, and in order to coöperate with and support them in their work we must do all we can to procure the proper legislation in our own state before we will be in a position to meet national legislation.

While it has been truly said that experience is the best teacher, yet there is no denying that it is in many instances a very dear one. The progressive man of to-day is he who is ever ready to profit by the experience of others. Various are the prices paid by men in the professions to-day who must have experience of their own before they can be convinced; many times the price is failure. A little personal experience is a good thing, but it is still better to studiously avoid the experience of those who have met with shipwreck.

I hope that the State Board of Health in Vermont will not take action in these matters and allow a record such as the Massachusetts State Board of Health have made. They have been severely criticised throughout the United States, and I do not hesitate to say that in my opinion they are not fit persons to be at the head of any health department, and have committed a gross injustice to the citizens of their state.

Then let us ever strive to elevate our profession and take such action in these important matters as will terminate in the greatest good for the greatest number.

Discussion by E. G. Roberts, M. D., Fair Haven, Vt.

In regard to burial permits, the way I do is this: I get a burial permit from Castleton or Poultney giving permission for the removal of a body. I take that permit and issue a new one on the strength of it. I have told our undertakers and the sexton not to bury a body without a certificate. I

think Colonel Baker gave us his version of it, and I think it is a question that should be settled once for all.

Discussion by Mr. Moulton, Holland, Vt.

Since the health officers' meeting last year, the State Board of Health have issued circulars or rules which the health officers of the state are to follow. The State Board of Health may issue such rules as they deem consistent. Do those rules become laws if there is no statute behind them?

Discussion by Dr. C. W. Peck, Brandon, Vt.

I do not wish to enter into the discussion, but I would ask the chairman to make a little explanation. The health officer is appointed by the State Board of Health. I supposed his jurisdiction extended over the state.

Discussion by Mr. Cudworth, South Londonderry, Vt.

The certificate of death should be issued in duplicate; one copy kept by the health officer of the city or town where the man died, who should issue upon that one of removal. The duplicate copy should be delivered to the health officer of the town, who will then issue the burial permit.

Discussion by Mr. Stillson, Bennington, Vt.

You would have that death recorded twice?

Discussion by Mr. Cudworth, South Londonderry, Vt.

No; one would be used to obtain a removal permit, and another gives the right to convey it.

Discussion by Mr. Brown, Calais, Vt.

If a body is not buried but left upon the ground, what should be done?

Mr. J. W. Roberts, Burlington, Vt.

Very soon it would be the duty of the health officer to abate the nuisance. If a sexton said he would not, I should bury it myself.

Discussion by Mr. E. A. Cudworth, Londonderry, Vt.

In response to these inquiries, I would say that when the legislature gives to your State Board of Health the authority to promulgate rules, it is with this understanding that their rules and regulations must conform to the law of the state. They can issue such rules as shall best in their judgment cause the fulfillment of the law, but they cannot oppose the law or repeal it. If they should attempt to do that, even inadvertently, their rules would not have any binding force whatever.

Discussion by Dr. Sanborn, Fair Haven, Vt.

I think there should be an understanding between the health officers and funeral directors. The health officer is sometimes called to make out a diag-

nosis where there had been no physician; sometimes we are called after the patient has been embalmed. I do not think this should ever occur, but I think there should be some understanding between these two classes, so when a health officer is called to make out a certificate, and there has been no attending physician, the funeral director should not touch the body until the health officer arrives. I have had quite a bit of trouble in connection with infants. It troubles us quite a bit; we cannot make a satisfactory autopsy.

Mr. J. Warren Roberts, Burlington, Vt.

I am very glad this doctor spoke of the subject of embalming before the health officers arrived to make a diagnosis. If a person who has had no attending physician dies, under no circumstances whatever should that body be embalmed until the health officer arrives and has made his examination. This should be plainly embodied in the law and a penalty placed on any undertaker or embalmer who does not comply with it. We never know but that there was foul play; the patient may have died from heart disease, but we never know until there has been an autopsy. If we are using arsenic for embalming, how can any one tell whether arsenic was administered as a poison or not. I had a case this morning: a man, who was out yesterday as usual, started to get up, then fell back on the bed and died. There was no attending physician. I was called to prepare him for burial. I immediately inquired who was the attending physician, and when his wife said there had been none, I immediately telephoned our health officer, Dr. Clark, and told him the existing conditions. A physician was there a few minutes after he died. I referred this physician to Dr. Clark, and they gave me the permission to go ahead.

Discussion by Mr. Spencer.

I have only a word to say. Mr. Roberts said he had a law drawn up which I should like to hear before this body adjourns. It could be read, and if agreeable, could be endorsed by this body and by the funeral directors, and thus it might have some weight. We are interested in the same things you are; disinfection and cleanliness.

Mr. J. Warren Roberts, Burlington, Vt.

I will have several copies of it at noon. It is at present in the hands of my stenographer. If you care to have it read and discussed, I will only be too glad to be here and have it placed before you. I should be glad to have a law that will appeal to any man who has common sense, so he will see it is for the good of the public we are working for and not for our own personal gain.

Discussion by Dr. C. S. Caverly, Rutland, Vt.

I wish to thank Mr. Roberts for his paper and the pains he has taken to prepare it before this meeting.

Mr. H. L. Stillson, Bennington, Vt.

I did not intend to say a word on this question, but there is a very important left out. I have a certificate in our town where the son did not know his mother's maiden name. Many Yankees do not know their grandfather's and grandmother's names. These records are for identification of people and should be filled out as completely as possible. In our town we are paying a great deal of attention to the father's name and mother's name. It is very important at the present time that every one of Irish descent should find out their mother's maiden name. If a Yankee don't know his mother's maiden name, what can you expect of a German or Italian who has been in this country only four or five years? I think on the blank there should be left a blank space for the undertaker to sign, telling where the funeral is to be and where the body is buried. Have the sexton sign, putting in the name of the cemetery and the number of the lot. Our undertaker asked me to say here to-day that he thought it would be advisable to have a blank square with the owner's name of lots in cemeteries printed, and when a body is buried, mark them right out and indicate what grave that body was buried in. I want to say, gentlemen, that we have embalmers in our town and we have no trouble at all. Modern science has solved the question, and we have not got to distress the parents with any arbitrary rules. In our town if a minister refuses to go to the burial ground, I take out the prayer book from my pocket and we have a Christian service. You should, as health officers, have those things bear as lightly as possible on the friends of the deceased and do everything in a quiet way.

Mr. J. W. Roberts, Burlington, Vt.

I am very glad I happened in at this time, for this is a very important point in our law. In the first place we have a death, and the attending physician makes out the death certificate. It is his duty. I have a blank, and every question is placed thereon. I give the family that blank and have them make out the answers, and when I have time I drop around and get it from the family and bring it to the doctor, and he can make out the death certificate from that; later I go and get it from the doctor, and then get a permit from the health officer. If you leave that matter with the family they will say at the last moment that they forgot about it. I always attend to it myself, and then I know I am carrying out the state laws.

Regarding this certificate which one gentleman said he should make out in duplicate, I would say that I can't understand how physicians will make out more than one, and I have got to have that certificate myself to present to the health officer before he will make out a permit for me. You can get several permits. If a person dies in Burlington and the health department are satisfied that that person is in a fit condition to be buried in Williston, is n't that certificate that accompanies the body sufficient for the health department of Williston? Have n't they confidence enough in the health department in Burlington so that when a certificate of removal has been granted

they will know that if a body is in a condition to be transferred it is in a condition to be buried? The permit must accompany the body to its destination. Suppose I have a certificate from California; have not your health officers enough confidence in the health department of California so that they will accept that certificate after the body has been brought from California to Burlington? They should know that after that long journey, it is in a condition to be put in the ground.

Discussion by Dr. G. R. Sanborn, New Haven, Vt.

Suppose they do not bring a permit from California?

Mr. J. W. Roberts, Burlington, Vt.

They are not allowed to put a body on a train without a permit.

Discussion by Dr. G. R. Sanborn, New Haven, Vt.

What is the matter with issuing your permit of removal and burial at the same time?

Mr. J. W. Roberts, Burlington, Vt.

That is just the thing that should be done.

Discussion by Dr. J. T. Hefflon, Franklin, Vt.

I have not very much to say. It seems to me that the matter of burial permits has been thrashed over and over, yet there always seems to be something lacking in the law. The only thing to do is to bury the body. No one is buried or removed from one cemetery to another without a permit, and that permit is a part of the record. I should certainly be in favor of having the marriage certificate made a part of the permanent record. I would have the application for marriage endorsed and signed by the clergyman and returned to the town clerk's office; give a certified copy to the parties themselves. I would have this application filed as a part of the records of the office.

THE DUTIES OF HEALTH OFFICES AND HOW TO EXECUTE THEM.

BY DR. G. F. B. WILLARD, VERGENNES.

The application of modern sanitary methods to the prevention of disease, with the addenda of fire escapes, practically includes all the duties of health officers; but in practice this infers a working knowledge of various sciences, and understanding of numerous trades, and an active participation in the professions from the diagnosing of mild variola to the policing of the graveyard.

These duties have been discussed in various phases ever since the School for Instruction for Health Officers was instituted, so it will not be advisable for me to try to recapitulate, except so far as it serves the few points to which I wish to call to your attention.

The law gives health boards the power to abate all nuisances affecting public health, to destroy, prevent or remove all sources of filth and causes of sickness, to guard against the introduction of contagious diseases, and control all persons and things liable to communicate contagion, and to isolate all persons and things infected with or exposed to contagious or infectious disease, and to provide for their proper care and support.

The health officer being the executive officer of this board, it becomes his duty to investigate all sources of filth and disease, of contagion and danger, and inform the board of the conditions (preferably in writing), and when he receives their sanction and direction, to execute their orders and see that they are obeyed. The law provides that these orders shall be in writing, and it is also a good plan to require individual complaints to be written, giving location and reasons for requiring the attention of the health officer, signed by name of complainant. This is the legal method, but probably few health officers follow it literally in every case. More often in my own experience it has only been necessary to investigate a nuisance, call the attention of the responsible party to the grievance, and suggest the remedy. Often I find that the offence had not occurred to the party causing it, and he is glad to stop the difficulty. Again it may be necessary to tell a person the steps necessary, if action is not at once taken. If mild measures fail, then proceed as the law directs.

Those who were present at the opening session of this school and heard the address of the president will not need to be reminded of the duty of keeping a record that will show at any time, with data, the complaints made, their character and treatment; diseases reported, investigated, quarantined, when cleared and disinfected, how; also kind of quarantine and results. Again, deaths, with cause, age, sex, nativity, and burials permitted should go

on record; also removals. Inspection of churches, schoolhouses, factories, theaters, libraries, and other public buildings should receive attention and record in regard to sanitation and fire facilities, with the changes advised and made. The record to be complete should contain the births, but with our present law for them we must depend on the town or city clerk.

The utility of this record will suggest itself to any health officer who has tried to make a biennial report with only meager records of a few months. A uniformity in these records would make our reports less liable to criticism.

The subject of isolation or quarantine, which was so well presented yesterday afternoon, ought always to demand our attention. Let the isolation be complete. No person except the doctor should leave the premises, even dogs and cats should be kept out. If necessary the street should be blocked. The quarantine must be prompt and effective. Lax and tardy isolation is responsible for many epidemics. Some one is at fault; let it not be the health officer.

In case of death the officer's duties do not end. No public funeral for a quarantined family. No one to enter the premises except undertakers; and see that they understand the nature of the disease. If the patient recovers, no exact time can be set for the removal of quarantine. In diphtheria the State Laboratory will tell you when the Klebs-Löffler is no longer present. In smallpox and scarlet fever every particle of desquamation should have disappeared. In whooping cough the isolation remains till the specific cough is gone. Remember in all cases while the quarantine exists the quarantined are responsible; when it is removed the health officer assumes the responsibility. Prevention is our watchword in every consideration.

Disinfection has already been ably discussed in this meeting, but I wish to emphasize the importance in tuberculous cases. The house is the home of the tubercle bacilli, as we were told by Professor Flick, and we all know that in Vermont very few of these patients take proper care of the sputa, so when from any cause they leave a house it is presumed that there are tubercle bacilli ready for another victim. A systematic cleansing of these premises would be in direct line with our work and ought to be done. I doubt not that pneumonia and influenza will soon be classed among preventable diseases, but I need not enlarge on this subject.

I have omitted much that might be said of our duties and how to execute them, but have done so purposely. One duty more that the law does not say much about is the duty of loyalty to our state sanitary institutions,—our State Board, State Laboratory, and our State Sanatorium that is to be. Who better than the health officer appreciates the benefits of such institutions, and who better than he can call the attention of the individual members of the next legislature to these institutions, and the work they are doing and will do to better the condition of the people? Will it not be a pleasant duty to personally request them to carefully read that eloquent address of Professor Flick in the next Bulletin?

The problem of milk supply in the larger towns and cities is one that is interesting. Watered, skimmed, or even chalked milk is not as dangerous as

milk from a tuberculous herd. But how can I as health officer protect the citizens of the town from tuberculosis under the present law? Can I prevent the sale of milk from untested cows?

The only solution I can suggest is that a law be enacted requiring milk to be salable for family use be from tested cows only.

I trust the discussion will touch on the duties in regard to German measles, chicken-pox, and mumps, and their proper management. It is still a problem, with me, unsolved.

New problems will arise, but with our efficient State Board whose efforts have done so much to place Vermont in the vanguard of sanitary science, and every health officer knowing his duties and trying to execute them, Vermont will solve the new problems as they present themselves.

These problems so far as they pertain to the preservation of life and extermination of contagious disease become duties when presented to the health officer. No one can dictate what methods another shall use. Each case requires its own treatment. Tact, common sense and good judgment must allow for idiosyncracies and environment. Results are what is called for, and to have the best results the Vermont health officers must act promptly and effectively.

Discussion by Dr. E. G. Roberts, Fair Haven, Vt.

The health officer occupies a very important and responsible position. The ideal health officer should be a physician, a lawyer, and a sanitary engineer combined, as his duties brings him in contact with disease, the law, and unsanitary buildings and conditions. The duties of health officers are important and responsible for the reason that the health and in some instances the life of the community are dependent on the performance of their duty. They have to do with the protection of the public from preventable diseases, to ensure to it pure water, pure air, wholesome food, sanitary homes and sanitary public schools, buildings and factories. So it is plain that our duties are very onerous. In the smaller towns, happily, the question of wholesome food does not concern us very much, as we generally have a good food supply, but we *do* encounter great trouble with numerous nuisances, such as accumulations of decaying animal and vegetable matter, bad drainage, privies, and, worst of all, the cesspool, all of which combine to contaminate our water and air supply, and all of which are a menace to public health.

A few years ago the public looked upon the health officer almost as a nuisance himself, rather than an abater of nuisance, and often resented his interference in the abatement of such or the quarantining of contagious and infectious diseases; but I am glad to be able to state that those days are passing away, and that a more hygienic condition of mind is now prevailing. The public has slowly been educated to appreciate our efforts and the importance of our work in fighting the causes of disease and limiting its expansion after its development, consequently they show us greater respect than they used to. Even physicians, if not actually antagonistic, used to be very apathetic

in their dealings with health officers and very lax in reporting communicable diseases. But in their case, also, there has been great and decided improvement, and in most instances show a willingness to coöperate and assist the health officer in the discharge of his duties, in proof of which I may cite that in every case of a doubtful nature I am called in consultation to decide the question.

There is an old adage, which is also a truism, that "Prevention is better than cure." If so, preventive medicine is better than curative medicine, consequently the one who prevents disease is better than the one who cures disease. The duty and aim of the health officer is to prevent disease by doing all in his power to eliminate its cause. Therefore, it is not too much to say that the efficient health officer is on a higher plane than the physician, and deserves just recognition and respect. The first duty of a health officer is to familiarize himself with and study well the public health laws, as their rules and regulations very fully and clearly define our duties. Thus we will be prepared, and if occasion should ever arise we will be enabled to arise to the occasion.

Another duty that I think of importance is attendance at and close application to the meetings of this school. I believe in it. It has done great good already and has been a helpful aid to all of us. I believe it is going to be more helpful year by year. The papers read and the lectures delivered have been interesting, instructive and practical, and of a high order, and we should saturate our minds with the good things spread before us, carrying them home so that we can apply them to practical purposes in our several towns. Here I cannot help saying that we owe all this to the wisdom and good judgment of our State Board.

Another duty devolving on us health officers is the education of the people in sanitary matters on every occasion that presents itself. Teach them the great value and importance of sunlight and pure air. It is surprising how slow the general public is to appreciate this fact. I continually preach it to all my patients and to all those that I come in contact with in my capacity as health officer. Teach also the value of personal cleanliness as well as cleanliness in and around the premises, the danger of damp cellars and deficient drains, and the abominable closed cesspool. Should an improvement or change be needed for the disposal of human excrement or household waste, agitate the question whenever you can and bring the matter up before the taxpayers again and again, especially in the yearly report to the town meeting.

In executing our duties, our efforts should be to enforce the requirements of the law as effectively as possible with the least amount of friction; for instance, in cases of contagious disease, let us do our best to arrange the quarantine so that, if possible, the bread winner or bread winners can go about their daily work. Again, in cases of nuisances, it is better to go slow, unless the case is imperative, than to antagonize; let us try and win the offenders to accept our good offices by showing them that it is equally for their benefit as it is to their neighbors that the health laws should be enforced.

To this end we have in many cases to use tact and good judgment, treat all alike, rich or poor, and enforce the requirements impartially.

Imperfect as our work has been it has brought about a marked change in the sanitary conditions of many of our towns and villages. For my own town I can say that never before has it been the fair haven it is at present. A good system of sewers is in course of construction, most of it in working order, and many of the householders are putting in closets and bath rooms, thus doing away with the most annoying nuisances I had to contend with, viz., the privy and cesspool.

Lastly, I believe that the gradual modification in the virulency of the contagious and infectious diseases so noticeable in the past ten or twelve years has been due to some extent, at least, to the work of the health boards in keeping them down, and I feel sure that if the preventable diseases are ever eradicated from the list of human troubles it will be through the agency of the public health department.

Discussion by Dr. Newton, Benson, Vt.

I should like to ask Dr. Roberts how they are going to dispose of their sewage in Fair Haven?

Discussion by Dr. E. G. Roberts, Fair Haven, Vt.

The sewer empties into the river; we have a very good way. The State Board got the privilege of using the river in disposing of the sewage of Fair Haven.

Discussion by Dr. C. S. Caverly, Rutland, Vt.

The company that had the dam gave a written lease.

Discussion by Dr. Newton, Benson, Vt.

In case of a death from a malignant contagious disease, what are the special duties of the health officer in controlling the funeral?

Dr. G. F. B. Willard, Vergennes, Vt.

In malignant contagious diseases there is to be no funeral. We have got to bury the dead body. It should be wrapped in a disinfecting sheet without any washing whatever. The rule of the State Board of Health, I think, gives you the formula. Just wrap the body with disinfecting sheets, obtain a proper casket as soon as possible and bury it. The casket should be packed in the box with some sawdust and a disinfectant used. Then load into a wagon and bury with as few attendants as possible. If some of the family are well and wish to go, there is no objection, but there should be no funeral under any circumstances. The whole business of the health

officer is to prevent anything that is detrimental to public health. The method that the State Board suggests is, I think, all right and perfectly safe.

Discussion by Dr. D. D. Grout, Waterbury, Vt.

There was one point brought up in Dr. Roberts' discussion which I wish to bring up again. It is the advantage to us, not only as health officers, but as practicing physicians, in attending some of these health officers' schools; and not only these health officers' meetings, but also state medical societies. My remarks will be addressed more particularly to the younger physicians. For the first twenty years of my medical life, I attended strictly to business. I thought I could not take the time to attend, but the last ten years of my life I have been continually attending these meetings, and the only thing I can say is that I am sorry I did not do it before. For the last twelve years, I have attended county, state, and national medical meetings, and I attend all the meetings of our county society, if possible, our state medical society, and as well those of other states, and the national society, and while I have received a great deal of benefit from each and all, yet I don't know that I have ever received any more benefit than from attending these health officers' meetings. Here we learn something from each other, and not only that, but we always have some foreign speaker of note. We learn by observation and absorption. We learn how different ones carry on their business. I have taken post-graduate courses in different schools, but I have never attended anything that I felt so well repaid for the time and money spent, than I have felt for attending these schools of instruction. We go to the big cities and hear the big guns fired off, and we go home and don't know very much about the meeting. Here we participate in the meeting and feel that we are a part of it. To-day in a small community where there is only one doctor, he can't get away from home. He does not keep abreast of the times. He is tied down. He should make it a point to get some one to take care of his patients and go to some of these meetings and get a few new ideas. If I ever felt grateful to anybody or anything, it is to the founder or establisher of these health officers' schools. The first time I started down to attend the school, I told my wife I guessed I would just stay over night and be back next morning, but when I got there and heard the first evening's program, I was so well pleased I thought I should stay the next morning and see what they would have next. Well, I was so well repaid for the time taken to come down here, I thought I should stay the next day, and the result was I staid through the entire first session and went home with the feeling that I should attend the next meeting, and I have attended each and every one and intend to keep up that practice as long as I live.

Discussion by Dr. Joe W. Jackson, Barre, Vt.

I think the remarks of Dr. Grout were very much in order from the fact that in looking up the register this morning there are only one hundred and sixty registered, and we have two hundred and forty-four towns in the state. I think we should make a better showing than that.

I have often heard it said that the non-medical health officer has not the authority or chance that the medical man has. That should be corrected. They have equal power; a non-medical man has as much authority as the medical health officer. Mr. Stillson said yesterday that during the epidemic of smallpox in his town he raised no question as to his authority for vaccination. I have 1,800 school children. The birth rate is from eighteen to twenty-five a month. Last year we had two hundred and three births in the city. Has the health officer no right to order a vaccination unless he has a scare. We appreciate that a certain portion hustle around to get vaccinated; what are we to do with the other portion? We have a moving population, and thus have the best chance for a smallpox epidemic in the state. Is there any legislature which will help us out in compulsory vaccination? Then there is another question,—the quarantining of the consumptive. We should have a law governing the consumptive similar to the one governing the diphtheria patient. The bacilli of the tuberculous patient are fully as dangerous as those of the diphtheria patient, and perhaps they are scattered about more profusely than the diphtheria bacilli. In order to get these rules, regulations or laws, whichever you wish to call them, classed, is n't it up to the medical profession to help out the legal profession to prepare something along these different lines for the coming legislature?

Discussion by Mr. Lake, Wells, Vt.

In my town there are five schoolhouses and the selectmen say they are good enough. What am I to do? This year they have had no inspection. They say the State Board of Health have n't ordered it done; now what am I to do?

Discussion by Dr. D. D. Grout, Waterbury, Vt.

Get a physician on the school board. The health officer should be on the school board. You can easily keep the children out of school who have not been vaccinated. You can examine the schoolhouses. It has a wonderful effect to have an intelligent health officer on the school board.

Discussion by Dr. C. S. Caverly, Rutland, Vt.

Superintendent Ranger told me that we were having more new schoolhouses put up this year in the state than ever before, owing to the law providing for an inspection. More health officers are reporting to their annual March meetings, and they are having their effect.

Discussion by Hon. J. M. Fisher, Cabot, Vt.

Regarding how far it is the duty of the health officer to go. I have been called upon several times to see a man who was keeping cattle half fed. I doubted if I had the authority to interfere, but I told him I was health

officer and inspected his premises. He was keeping cows in the barn with horses. I informed him that I should call on him in just two days, and if he had not taken care of those cattle and provided a good warm stable for them, I should prosecute him. In two days I arrived at his premises, but things had changed. I found he had sold some of his cattle, and that he had men working there making better stables. He had bought hay, and was feeding the cattle as he should. I do not know that I had the authority which I took or not, but I should like to hear something on that point.

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NEWS ITEMS.

The Secretary of the State Board of Health desires to call the attention of health officers, physicians and others, to some important provisions of law:

REGISTRATION OF BIRTHS AND DEATHS.

We would call the attention of all physicians to the necessity of great care in filling out birth and death certificates. We are aware that some physicians think too many questions are asked in the blanks. They emphasize this opinion by omitting to answer such as they think are of no consequence. In this they fail to comply with the laws of the state. All of the questions in both the certificate of birth and deaths, required by our state law, are necessary in order that this office may be able to make the report to the Census Bureau in Washington, which we have to do every six months. "W. A. King, M. D., Chief Statistician of the Census Bureau, calls attention to the fact that in our report of the last six months of 1903 we omitted to give the age of infants dying soon after birth, and further that our certificates show the following omissions: Conjugal conditions, 24; birthplace of persons, 62; birthplace of father, 860; birthplace of mother, 938.

"There will be cases when some of the details cannot be ascertained, but the percentage of unknown parent nativity is much larger than usual. Per-

